10 . 2 . 89 .

Dear Sir,

Domesday vol. II.
is not yet ready. I
am going to call
a meeting of the
Court to see what
we can do about it.

Domesday Studies

VOLUME I.

VOLUME II., which will be published as soon as possible, will contain the rest of the Papers read at the meetings, with a Bibliography of Domesday Book, Accounts of the MSS. and Printed Book exhibited at the Public Record Office and at the British Museum, and an Index to the whole work.

The subscription price of the whole work is £1. 10s. Volume I. is sold separately at 18s.

Domesday Commemoration, 1886.

1086 A.D.—1886 A.D.

DOMESDAY STUDIES

BEING THE PAPERS READ AT THE MEETINGS OF
THE DOMESDAY COMMEMORATION 1886

WITH A BIBLIOGRAPHY OF DOMESDAY BOOK AND ACCOUNTS
OF THE MSS AND PRINTED BOOKS EXHIBITED AT
THE PUBLIC RECORD OFFICE AND AT
THE BRITISH MUSEUM

EDITED BY

P. EDWARD DOVE

OF LINCOLN'S INN, BARRISTER-AT-LAW
HONORARY SECRETARY OF THE DOMESDAY COMMEMORATION COMMITTEE

VOLUME I.

DEDICATION

TO

HER MAJESTY THE QUEEN

THIS BOOK

WRITTEN IN COMMEMORATION OF ONE OF THE GREATEST WORKS

OF ONE OF THE GREATEST STATESMEN THAT EVER RULED ENGLAND

HER MAJESTY'S ILLUSTRIOUS ANCESTOR AND PREDECESSOR

IS

BY HER MAJESTY'S GRACIOUS PERMISSION

RESPECTFULLY DEDICATED

PREFACE

By HYDE CLARKE, V.P.R.Hist.S.

THE occurrence of the Eight Hundredth Anniversary of the
Completion of Domesday Survey of 1086 was the subject of
discussion in the press, and it having been brought before the
Council of the Royal Historical Society, it was considered
desirable to take measures for its commemoration.

In effecting this it was hoped that some benefit might
accrue to the encouragement of historical studies, without un-
duly promoting popular manifestations. At the same time, if
the national history is to become a vital subject with us, then
it is necessary that those incidents which affect the population
or localities should on suitable occasions receive notice.

There can be no doubt that the announcement of the pro-
posed celebration did in numerous cases recall attention to
the nature of the Domesday record, and to its wide relation
to so many thousands of townships and villages throughout
the length and breadth of the land. This was one purpose of
the Council, because the members considered the documents
in question were of singular interest, constituting a most re-
markable national monument, and relating to an epoch for
the description of which the materials are in other respects
scanty and obscure.

Great as have been the labours on this epoch and its
records, and particularly of late years under the leadership of

Professor Freeman, one chief result which has accrued from them is to show how much is still wanted, and more particularly the demand for individual and local co-operation, to accomplish the task of elucidation. In that survey we have before us a mass of details relating in many cases to institutions which have ceased to be operative among us, and from the proper explanation of which many historical facts have yet to be evolved. To stimulate such researches and exertions was the desire of the Council, and they believe they have been usefully employed in bringing forth the resources of the English school.

From the very condition of our school of history, which is that of so many of our departments of learning, dependent on individual effort, exertion and co-operation, and to a very limited degree on the organised action of the Government and the community, we are subjected to comparisons which appear unfavourable with countries where there are great institutions, an École des Chartes, numerous professorships, and large establishments paid from the public funds. The Domesday manifestation has shown that there is a considerable body of men among us giving their time and attention to this branch of investigation, and these have been strengthened in the conviction that their fellow-countrymen appreciate their labour.

With regard to the course of proceedings to be instituted, the Council wished to leave that in the hands of their fellow-workers. They invited the co-operation of all those interested, as well societies as individuals, in the formation of a conference. They esteemed it their duty to lay the matter among the first before Professor Freeman. Although the occupations of some persons prevented their active adhesion, the Council

received such encouragement as enabled them to persevere and apply for public support.

From the time of the constitution of the General Committee the direction of all measures passed into their hands. Conscious that they disposed of small means and were engaged in an enterprise of doubtful issue, the Committee were desirous rather to restrict than to enlarge its bounds, and to court technical contributions rather than those belonging to the domains of general history. They were aware that their participation was only temporary, and that the great work, if they succeeded in awakening attention, must come after them in the future, and would not really be set aside by their limited action.

The history of that great migration and intermixture of races, of which Domesday was one consequence, is not a labour to be achieved at once. Many attempts have been made to appreciate the changes which at first took place, and which are still in operation, but we are as yet too little familiar with the particulars of such ethnological events in various countries to arrive at determinate conclusions. The science of ethnology is still new and unsettled, and as its serious study expands so are multifarious conditions brought under notice, which still stimulate closer and more laborious examination of incidents here. The intermarriage of races is no longer accepted as implying a necessary perpetuation of their offspring, or the equal participation of these in the characteristics of the parent tribes. We are prepared for the disappearance or extinction of one element, while we know that the laws which govern the distribution of physical and mental characteristics are also obscure.

It is indeed of deep interest to study the effect of the in-

troduction in these islands of the Norman element, compli-
cated by contact with various mixed populations. Discussions
on these subjects during a limited session could, however,
have led to no definite conclusions, while they might have
wandered into vague speculations.

Similar circumstances were held to discourage the invita-
tion of papers on questions of genealogy, family or personal
history.   In the case of Domesday these topics are germane,
and are necessarily suggested, because its particulars refer to
the names of ancestors of those who have figured in our annals,
as of those now living in such numbers among our existing
population.

The narrow course adopted by the Council was no protest
against other branches of study, nor the expression of any
undue preference.   It was found that among the active co-
operators there were many who had devoted themselves to
the study of Domesday as a record, and to its elucidation.
It was seen there were enough of these to supply the material
for two volumes of essays, which it was hoped would form a
contribution acceptable to the student and even to the public,
taking its due place in the illustration of the subject to
which it is devoted.

Such was the design of these volumes, but it does not
constitute the whole matter of the commemoration, and only
expresses some portion of the co-operation which was elicited
by the occasion.   There was scarcely a local society in
England, engaged in archæological pursuits, which did not
send delegates to the conference, and it is known that one
result will be further effort in the illustration of the relation
of the record in reference to the local and personal circum-
stances of several counties.   A disposition has even been

shown to make the portion of the record referring to a locality
a school lesson, just as it is now proposed to make the local
map a beginning for geographical teaching. A short general
manual of history impresses itself but little on the minds of
children. They may be more awakened by what they can
understand, the events, and incidents, and battles in their
neighbourhood, which are narrated in the larger chronicles,
and which can be explained by competent illustration, by
maps and by excursions.

Interest was also manifested in the congress throughout
the English-speaking people. The Historical Societies of
the United States and Canada concurred in naming delegates,
and their chief and competent representative was the Minister
of the United States, the Hon. Edmund G. Phelps, who took
an active part in the councils of the conference and in its pro-
ceedings. A like concurrence was shown by the Historical
Societies of Australia and the Colonies.

The growing attention to our older history and genealogy
observable among those of our people who are engaged in the
establishment of new commonwealths throughout the world
is one of the best guarantees for the vitality of the English
school of students and for its effective development.

Although the direct interest of our Scandinavian friends
was limited, the Royal Society of Northern Antiquaries
adopted the measure of sending a delegate, whose presence
was a welcome announcement of the participation of that
eminent body. Reports of the proceedings also appeared in
the Scandinavian journals.

The regret felt at the inaction of the Norman Societies
after their invitation would have been unalloyed, if it had not
been for the co-operation of their most distinguished repre-

sentative, M. Léopold Delisle, of the Institute, Director-
General of the National Library in Paris. He, stimulated by
the memory of his former labours on Domesday, did what he
could to provide for the share of France. Aided by the Société
pour l'Histoire de France, he contributed a paper on a new
Norman charter to their proceedings, and gave it as a freewill
offering on the part of France to us. He also sent copies of the
paper for the service of his numerous colleagues on our com-
mittee. M. Waddington, the Ambassador of France, was
pleased to take an active part in promoting co-operation from
that country.

Encouragement was thus largely given for proceeding with
the undertaking, and in this course, through the intervention
of their President, Lord Aberdare, the Committee received the
support of the two great national establishments. The chiefs
of the British Museum entered most cordially on the task,
and provided fully for the public requirements. From their
collections they brought forth every document which was
illustrative, and the General Committee were able to obtain
by the liberality of various authorities, and particularly of
the Deans and Chapters, the production of local Domesday
books and other records. This assemblage of ancient muni-
ments was laid open for public inspection for many days, and
was one of the events of the institution in that year. The
officers of the institution, some of whom were members of the
Committee, spared no pains in their arrangements, and on the
day of opening caused an address to be read, and afforded
copious information.

The application of Lord Aberdare to Lord Esher, the
Master of the Rolls, was received with cordiality and re-
sponded to by the application of the resources of the Record

Office, and by the zeal and energy of the Deputy Keeper and the officials. Thus a memorable spectacle was afforded, such as has seldom been equalled or surpassed, of bringing together in the Record Office and the British Museum the scattered contemporary archives of a far-distant age. Many were reminded that all history is not in the pages of books, nor are writers its only witnesses and exponents. The evidences of the past were brought before the eyes of our generation, and the Domesday volumes in their chest were produced by the successors of their original custodians. The Record Office is not designed for popular exhibitions, and its staff could on this occasion do less than they desired to meet the public wishes, but they made an effectual effort. One useful result was obtained, and that was to make more widely known than to the circle of specialists how the Record establishment had been administered under conditions far from favourable, and little savouring of liberality to it, and how by the care of those who have governed it in this country an institution has grown up honourable to the country, and able to be placed alongside those of continental nations.

It is not easy as yet properly to estimate the co-operation of the Record Department, but it is to be hoped the hands of its officials will be strengthened in unobtrusive labours by the conviction that those labours are recognised in their value and their usefulness. In the Rolls House the meetings of the Committees were allowed to be held, with the presence of officers of the staff, and sometimes under the chairmanship of the Deputy Keeper. These meetings have helped to consolidate the corps of Domesday workers, and it may be possible occasionally to resume the meetings of the conference so as to consult on operations in future years.

Trivial as such opportunities for intercourse may some-
times appear, yet they occasionally strengthen the convictions
of thinking men, and give activity to their resolutions. A
proposition had previously been made by Mr. William de
Gray Birch for a Domesday Society, and this has received
more adherents. There was, however, one conviction which
on such an occasion could not fail to come under active con-
sideration, when directly suggested by the purpose of the
gathering, and that is, the great want of a careful study of our
legal muniments and their bearing on a subject hitherto
obscure, the history of English law. When we consider that
of the laws which govern the population of the globe the
English system exercises so wide an influence as compared
with the Chinese, the Roman, the Mussulman, or the Hindu,
then the importance of its thorough study is seen. A grow-
ing zeal on this head is now manifested at home and in the
United States, and it appeared to our Honorary Secretary,
Mr. P. Edward Dove, that the time had come for a further
effort. Supported by the approval of members of the con-
ference, he has been enabled to carry his design to comple-
tion. The Selden Society has been founded, under the
patronage of Her Majesty the Queen, with the concurrence
of authority in England and in the United States, and is to
be carried out as a common institution. The first volume of
the Selden Society will shortly follow this now in our hands.

A further effect of the influence of the commemoration is
proposed by a society here for publishing the French chartu-
laries, for naturally the history of the tenants *in capite* is largely
to be found in the records of their native countries and of the
monasteries they founded there. Thus what Dugdale has
given us in his ‘ Monasticon ’ may be duly supplemented.

M. Delisle has also laid before the French Government a proposal for a Norman Commemoration, on the basis of ours, upon the other side of the channel.

The papers which were prepared for the conference were, by the liberal co-operation of the Benchers of Lincoln's Inn, read in their hall. Although read at a time when so many were still absent from town, the papers were fully and adequately discussed, and the proceedings were recorded in the daily and other papers in a sufficient extent to bring their matter well before the public. The journals in most parts of this country and in many districts abroad also gave attention to the subject.

Referring to the Commemoration in his last Annual Address, the President of the Society of Antiquaries said : 'I must, however, now turn to the events of the past year in which this society has been principally interested. I may first mention the Domesday celebration, in the organisation of which we were represented by our Fellows, Mr. C. Trice Martin and Mr. Stuart Moore. The idea of such a celebration of the eight-hundredth anniversary of the completion of this unique Survey originated with the Royal Historical Society, and the success of the undertaking is in great part due to the energy and perseverance of its honorary secretary, Mr. P. E. Dove. That it was a success all who took part in the week's proceedings will readily acknowledge. The exhibition of original documents both at the Record Office and at the British Museum was of the highest value and interest, and this society was able to contribute a not unimportant quota in the Winton Domesday and the *Liber Niger* of Peterborough, of which the Museum authorities kindly took the charge. The papers read on the occasion were numerous and valu-

able, and it is to be hoped that when they are published in a connected form they will add a further impetus to the detailed study of the Norman period which the Domesday celebration so well and happily inaugurated.'

Thanks are due to many who have co-operated in the conduct of the Domesday conference. Indeed, the appeal made by the promoters of this undertaking has been in general most cordially received, and they believe that had they made a more extended appeal it would have met with as ready response. On one point alone have they not succeeded as yet, which may be owing to the delay in the publication, and that is, in providing a sufficient number of subscribers for these volumes. They therefore strongly recommend this matter to the hearty consideration of those who read these volumes.

CONTENTS

OF

VOLUME I.

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On the
Study of Domesday Book.

By STUART MOORE, F.S.A., Barrister-at-Law.

I COME before you oppressed with such a sense of my un-
fitness to enter upon a dissertation of the Study of Domesday
that I feel I must crave your utmost indulgence to-night, and
deprecate any severe criticism on this paper, for these reasons.
It is now twenty-three years ago since I made any serious study
of our great Record, and my researches in it since that time
have been casual and accidental, directed only to particular
objects which have come before me from time to time. A collec-
tion of voluminous notes and extracts from the Book itself,
and from some hundred or more Monastic Chartularies which
I made when I was engaged in editing the Northamptonshire
Domesday, were lent by me to the late Mr. Larking, and by
him, alas, never returned, and I am thrown back upon imperfect
recollection of past study for material for this paper.

I had hoped to come here to-night to listen and to learn,
and not to speak. I thought that my place would have been
more worthily and more fittingly filled by my friend Mr. Elton,
from whom we have all long expected a learned dissertation
upon the important subject before us, but I was informed only
a few days ago that Mr. Elton could not read any paper, and
at the earnest entreaty of your most indefatigable Secretary,

Mr. Dove, I have consented to do my best to take his place. I feel, however, that to attempt any really serious discussion of Domesday Book, I require better material than an imperfect recollection of past labours and the fragmentary observations of succeeding years. Time has not permitted me to sufficiently refresh my memory or to collect new materials and new observations, to enable me to deal with the subject before us in the way I had hoped would be done to-night.

In approaching such a subject, one cannot be too conscious of the great labours of previous inquirers, and these are so imperfectly known to me, and so imperfectly understood, that I may say with a recent poet, who speaking of the realm of song says :

We are pent
Who sing to-day by all the garnered wealth
Of ages of past song.   We have no more
The world to choose from, who, where'er we turn,
Tread in old thoughts and fair.

When I review the vast array of works on Domesday, bearing the names of Ellis, Eyton, Baker, Larking, and other great scholars and labourers in this great field of research, I shrink from my present task and feel that I shall in almost every, if not every part of it, be telling a tale that is told.

I have thought it best therefore, in this slight essay, not to attempt any exhaustive review of the material for national or social history which this great Record presents, but to give forth the impressions that I have received in studying Domesday, and the conclusions that force themselves on my mind as to the motives of its conception, the method of its execution, the nature of the information it yields, and the means of interpreting its obscurities, in such a way that they may possibly serve as some guide and assistance to those who are studying particular portions of the Record or particular subjects arising from its text.

At the outset I find myself in accord with one whose minute study of the great Record and whose indefatigable labour and great attainments will be recognised by all here (I mean Mr. Eyton), on the first and most important question relating to the study of Domesday, viz. to use Mr. Eyton's own words :

That it long since dawned upon my convictions that Domesday is its own best interpreter, and that those who would understand Domesday thoroughly must get their knowledge from Domesday itself. Lexicographers and glossarists only perplex and mislead the Domesday student. The question for us here is not what a word or expression may sometimes have meant etymologically or in its various and successive uses, but what that word or expression did mean and must have meant in Domesday.

It must be remembered that we have no official contemporary record whereby to illustrate the text of the great Survey (for the Exon Domesday and the ' Inquisitiones Geldi ' I think should be read as parts of it), and until we get that long hoped for compilation of a Chartularium Anglo-Normannicum which I believe has been proposed, and it is hoped will one day be produced by the Rolls authorities, we are not likely to get any great help in this direction. I do not wish it to be supposed for a moment that researches among Monastic Chartularies and records of later date do not materially assist us in understanding the obscurities of the great Record, but the information which they give us with regard to measures of land and methods of cultivation &c. must be taken *cum grano salis* when we attempt to illustrate Domesday by the information which they present. These records are for the most part of very much later date, and we must not too hastily suppose that the information they give us, and the facts they set forth, and the deductions to be drawn from a collation of them, necessarily and accurately apply to the condition of the land and the state of its cultivation at the time of Domesday Book.

My researches amongst these later records lead me to the
conclusion that from the thirteenth century downwards there
was not any existing knowledge of what Domesday Book
meant, and the few references to it which I have found seem to
me to show that the writers of them knew the Book only as the
great Survey, but were almost wholly ignorant of the meaning
of its language. The very meaning of the name of it was lost
in actual doubt. The interpretation of the name given by
Rudborne, a writer of the fifteenth century, is that 'it is called
Domesday because like the great Day of Judgment it spares
none.'[1]   The word is similarly explained by the author of the
'Dialogus de Scaccario,'[2] who composed his work about the
end of the reign of King Henry III.   According to the com-
piler of the Red Book of the Exchequer, who wrote in the
twelfth century, it is called Domus Dei, or the Roll of Win-
chester, and Stowe in his 'Annals' (p. 118) says of it: 'The
Book of Bermondsey saith that this Book was laid up in the
King's Treasury (which was in the church of Winchester or
Westminster, in a place called Domus Dei or God's House), and
so the name of the Book therefore called "Domus Dei," and
since shortly Domesday.'

Archdeacon Hale's theory is that its name arose from the
Law Day or Domesday at which the tenants and Hundred
men presented their verdicts before the Royal Commissioners.

Among Monastic Registers the more general title by which
it is quoted is 'Liber qui vocatur Domesdei'; and it is worthy
of remark that wherever the monk transcribing the record has
done so correctly and appears to have in any way studied his
subject, he invariably writes Domesdei or Domesday, but when
the scribe has been manifestly ignorant we generally find
Domus Dei. It is almost certain that in the thirteenth and
fourteenth centuries or even earlier the monastic scribes of the
times with few exceptions knew little or nothing of the nature

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[1] *Anglia Sacra*, i. 257.   [2] Madox, *Hist. of Excheq.* ii. 398.

of the Record, as they seldom if ever transcribed it accurately ; in one instance the scribe has so grossly blundered as to introduce an interlinear word in the original into the middle of the line, utterly regardless of the sense.[1]

The most intelligent ancient observation upon Domesday which I have found occurs in the Register of Waltham Abbey,[2] appended to a copy of a portion of the Record relating to the possessions of that Abbey, in which the writer says :

Many advantages may arise from the possession of the copy, because it can be seen by it how the manors of this church were held before the Conquest and at the Conquest. It can also be seen how many hides there are in every manor, and if the king should wish to tallage his realm by hides, it can be seen by how many hides our manors are taxed, notwithstanding that by charter this church is free from the tallage of hidage. It can also be seen what estate the tenants of our manors have of right. I do not say what state they have at present, because by the patience and negligence of lords or their bailiffs, by long continuation they have now a freer estate and may have other than they should have, to the disherison of the church and the peril of the souls of those who in such cases ought to have provided a quick remedy. It can also be seen, if any plea of malice long afore-thought should in times future be raised by anyone to take away (*quod absit*) the possessions of this church, what or what words being in the said books or rolls should be called to warranty, and likewise what advantage or gain may be brought to this church, and many other uses, although they are not here expressed, may arise from the possession of such copy ; and be it known that those things which are here noted from the Book of Domesday ['Librum del Domesday'] are written word for word with titles as is there written.

And then the monk adds the following caution :

Nor do I advise that these memoranda should be allowed to come into the hands of the unfaithful, lest perchance they might scheme something sinister to the prejudice of this church, whereby many inconveniences, costs, and trouble might arise.

[1] *MS. Lansdowne*, Brit. Mus. 415, f. 31.
[2] *MS. Cotton.* Tiberius, C, ix. f. 196 *b*.

The extract which the monk gives is very correctly made, and shows that the scribe had studied his subject.

In the reign of John, Domesday was known to the King's Court as the Rotulus Wintoniæ.[1] In the reigns of Edward I. and Edward II. it is referred to by the Court of Queen's Bench as Domesdei and Domesday, but by the time of Edward III. it seems clear that the meaning at any rate of part of the great Record was not even understood by the Judges.[2]

Kelham says, a question arising in 12 Edward III. whether the lands of Roger de Huntingfeld were holden of the king *ut de corona* or *ut de Baronia vel Honore*, the Treasurer and Barons of the Exchequer were directed by the king's writ to search Domesday and other records, and to call to their assistance the Judges and others of the king's council, to make their return thereof. They accordingly return to the king in his Chancery a certificate by which they set forth several things which they found upon the search, and *inter alia*, verbatim, what they found relating thereto in Domesday, but as to the words contained in the said Book of Domesday they set forth that they are not able to make a declaration or interpretation of them unless just as the words sounded.

We must not look therefore for any but the slightest aid from the records of later centuries to enable us to understand the difficulties presented by the text of the great Record. I am convinced that it is better understood now in this nineteenth century than it has been since the end of the twelfth century. From the Book itself, and from the Exon Domesday and from the ' Inquisitiones Geldi,' we shall learn more than from any other source.

The first and most important step towards the study of

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[1] In the entry of Peter de Brus' land made after the completion of the Book, it is described as *Liber de Wintonia*.

[2] Kelham, *Domesday Book illustrated*, p. 245.

Domesday will be, I think, the completion of the bibliography of Domesday, which I am rejoiced to find is contemplated by this Society. It will gather together and give as it were a *catalogue raisonné* of the work which has been hitherto done towards the understanding of the great Record, and I hope that it may be so compiled that it will not give merely a kind of bookseller's catalogue of the printed works, but will contain some review of the labours of the authors, showing what branches of study they have each taken up, with a criticism of the theories which they respectively advance. Such a work would be of the highest value to future inquirers and save many a student from much useless labour.

Of the motives which induced the Conqueror and his council to undertake the Survey we have very little reliable information, and much that has been written on the subject savours more of a deduction from the result than of a knowledge of the immediate facts. We have the statement from the Chartulary of St. Mary's, Worcester,[1] of the appointment of the Commissioners by the king himself to make the Survey. We have also, the heading of the ' Inquisitio Eliensis ' which purports to give, and probably does truly give, the items of the articles of inquiry, which it sets forth as follows :

    I. What is the manor called ?
    II. Who held it in the time of King Edward ?
    III. Who now holds it ?
    IV. How many hides ?
    V. What teams are there in demesne ?
    VI. What teams of the men ?
    VII. What villans ?
    VIII. What cottagers ?
    IX. What bondmen ?
    X. What freemen and what sokemen ?

[1] *MS. Cotton.* Tiberius, A, xii.

XI. What woods ?

XII. What meadow ?

XIII. What pastures ?

XIV. What mills ?

XV. What fisheries ?

XVI. What is added or taken away ?

XVII. What the whole was worth together, and what now ?

XVIII. How much each freeman or sokeman had or has ?

All this to be estimated three times, viz. in the time of King Edward, and when King William gave it, and how it is now, and if more can be had for it than has been had.

This document is, I think, the best evidence we have of the form of the inquiry, and it tallies strictly with the form of the various returns as we now have them. So far as I am aware, the only other contemporary record as to the nature of the inquiry is the passage in the Anglo-Saxon Chronicle in which the Chronicler states that :

The king had very deep speech with his council about this land, how it was peopled, and by what men ; and then sent his men over all England into every shire, and caused to be ascertained how many hundred hides were in the shire and what land the king himself had and cattle within the land, and what yearly rent he ought to have out of each county. Also he caused to be written how much land his Archbishops had and his Bishops, his Abbots and his Earls, and that I may not relate prolixly, what or how much each man had who was a holder of land in England, whether of land or of cattle, and how much it was worth. So narrowly he caused it to be traced out that *there was not one single hide or one yard* [or, as Mr. Seebohm reads it, yardland or virgate of land], *and even—it is shame to tell though it seemed to him no shame to do—not an ox nor a cow nor a swine was left that was not set down in his writ*, and all the writings were brought to him afterwards.

Now these two statements differ considerably, and the growl of the unintelligent, unthrifty Saxon monk about the

enumeration of the cattle is scarcely borne out by the Survey itself. It is true that in the fuller returns, as the Exon Domesday, and the Norfolk, Suffolk, and Essex portion, cattle, sheep, goats, pigs, are returned, but they are the cattle &c. which formed the stock of the demesne of the manor, and this stock was quite distinct from the stock belonging to the tenants. Now it must be remembered that at this period and through many later centuries, this stock *went with the land*, and passed from bailiff to bailiff in succession, and was accounted for annually and enumerated on the back of every bailiff's account, and when in later times the demesnes of manors came to be leased, this stock was leased with the lands and the lessee had to make it good at the end of his lease. This practice existed as late as the reign of Henry VIII. It will be seen therefore that the Commissioners who made the Survey could not possibly arrive at the value of the manor unless they took account of the stock on the demesnes. Accordingly, in the fuller returns of the Exon Domesday we find the stock so enumerated, but in the abbreviated record the stock no longer appears. There was no specific instruction, as is insinuated by the Saxon chronicler, that the Commissioners should make return of every man's pigs, but that inquiry became necessary as to the stock of the demesnes in order that the Commissioners should arrive at the value of the manor which he was bound to return. *There was no inquiry as to stock belonging to the tenants*, and no *unnecessary inquisition as to their possessions*. This grumble of the Saxon monk, who like all his tribe keenly resisted all attempts to ascertain the wealth of the Church, must no longer be held up to the world as an instance of the rapacity and extortionate greed of the Conqueror. Thus all external evidence failing, we are driven back to the Record itself for evidence of the Conqueror's intention in framing it, and anyone who carefully studies it will be driven to the inevitable conclusion

that it was framed and designed in the spirit of perfect
equity.

Long before the Conquest, in the period between the
death of Alfred and that of Edward the Confessor, the
kingdom had been rapidly declining into a state of disorga-
nisation and decay. The defence of the kingdom and the
administration of justice and keeping of the peace could not
be maintained by the king's revenues. The tax of Danegeld,
instituted by Ethelred at first to buy peace of the Danes, and
afterwards to maintain the defence of the kingdom, had
more and more come to be levied unequally and unfairly.
The Church had obtained enormous remissions of its liability,
and its possessions were constantly increasing. . Powerful
subjects had obtained further remission, and the tax had
come to be irregularly collected and was burdensome upon
the smaller holders and their poor tenants, while the nobility
and the Church escaped with a small share in the burden.
In short the tax had come to be collected upon an *old and
uncorrected assessment.* It had probably dwindled in amount,
and at last had been ultimately remitted by Edward the
Confessor. Anarchy and confusion appears to have reigned
throughout the realm. The Conqueror was threatened with
foreign invasion, and pressed on all sides by complaints of
unfair taxation on the part of his subjects. Estates had
been divided and subdivided, and the incidence of the tax was
unequal and unjust. He had to face the difficulties before him
and to count the resources of his kingdom for its defence,
and the means of doing so were not at hand. In this situation
his masterly and order-loving Norman mind instituted this
great inquiry, but ordered it to be taken (as I maintain the
study of the Book will show) in the most public and open
manner, and with the utmost impartiality, with the view of
levying the taxes of the kingdom equally and fairly upon all.
The articles of his inquiry show that he was prepared to

study the resources of his kingdom and consider the liability
of his subjects from every possible point of view. He did not
simply order a return of what his subjects then held in present
value, without regard to whether the estates they held were
of improving value or decaying value. He wished to ascer-
tain in each case what was the old taxable assessment, and
what was the annual value under that assessment. He wished
to ascertain what was the annual value in each case when the
grant was made, and what was the value at the time of the
inquiry ; but having ascertained the modern value, or rather
gross value, he did not seek to enforce a tax upon that
assessment, which from adventitious circumstances might press
unequally and unfairly upon some ; but he directed his Com-
missioners to make a *new assessment*, not upon the then total
value, but upon the basis of a rateable value which was to be
measured by what we may call the possibilities of each estate.
He directed them to inquire and ascertain and estimate what
extent of cultivable land existed in each estate. The method
he employed to arrive at this assessment was to direct them
to return for what number of teams there was arable land in
each manor, and what number of such teams were in existence,
whether in the hands of the lord or of his tenants. This
assessment comprehended the pasture land necessary for the
maintenance of the teams and the houses and homesteads of
the tenants. From this return he could see what the land
ought to produce and what it was at the time actually pro-
ducing ; and further, be it observed that this assessment was
not made arbitrarily by the Commissioners, but upon the
evidence of the men of the Hundred and the men of the
estate. A more perfect method of assessment, a more just
and reasonable basis of taxation, can hardly be conceived
when we recollect that the universal method of cultivation
was cultivation on the system of the common field. The
Conqueror seems to have considered that by basing his new

assessment upon the *team* he was taxing the producible value of each estate fairly and equally, for the team could cultivate a given number of acres varying in each locality according to the nature of the soil, and he who had the most teams and the land for them to cultivate, had the most revenue. By taxing the team he also taxed the pasture, except mowable pasture, and the waste land upon which such teams subsisted, and also the house of the tenant. In short he taxed on a fair basis the whole estate. Special items of profit, as mills, fisheries, woods, &c., were in some cases separately mentioned, but valued in the total valuation of the estate.

In this system of valuation the Conqueror was creating no new or arbitrary basis of taxation ; he was only following out and correcting the Saxon system, and calling it by a new name. That basis of taxation which had been called the hide in Saxon times he terms the caruca or team. Under the Saxon system the Danegeld had been collected upon the hide. Now the hide of early Saxon times seems to have been an undetermined portion of land sufficient for the maintenance of a family, and Beda writes 'familia' where his Saxon interpreter writes 'hydelandes.' Kemble suggests that its root is to be found in the root of ' hygan,' ' hywan,' *familia.* It kept a plough at work during the year and was sufficient for the support of one ' hywisc,' or household. Henry of Huntingdon defines the hide as land sufficient to work one plough in the year. Despite much that has been said to the contrary, I am convinced that the hide, as the word is used in Domesday, cannot be treated as a definite areal measure of land. The variations of the extent of hides which we find in monastic surveys are remarkable, and we have no definition contemporary with Domesday of what a hide then represented. The inquisitions taken on the lands of Ramsey Abbey in the fourteenth century specify with great exactness the number of hides in each manor and the number of the acres contained

in them, and the acreage varies from 80 to 252 acres. In the Abingdon Chronicle the quantity is estimated at 240 acres. In the first book of the ' Liber Eliensis ' we have several notices of hides of 240 acres. In one instance in the Ramsey Chartulary there is mention of a hide containing 300 acres, and to show that the hide was well understood to be of variable extent, I will quote a passage from the Ramsey Chartulary which describes the manner of raising the relief of the free tenants of the Abbey, in which it is stated that an entire knight's fee is composed of certain hides, the hides of certain virgates, and the virgates of certain acres: to wit, that four hides make a knight's fee, four virgates make a hide, and acres make a virgate, ' videlicet aliquo loco plus aliquo loco minus.'

It seems to be well understood that the hide or main-tenance of the household did not signify mere acreage of arable land, for belonging to it was necessarily pasture for the cattle which tilled it, but whatever may have been the Saxon hide as a measurable quantity of land, I think it is clear that the hide mentioned in Domesday is, like its equiva-lent the team, a term of *assessment* and not of *measure*; it too was a basis of valuation, a designation of rateable value, and this is strongly confirmed by a comparison of the Ramsey Chartulary Survey with the entries in Domesday relating to the same lands. In Domesday the manor of Cranfield in Bedfordshire is rated for ten hides, and it is stated that there is land for twelve teams. It is further stated that there were, in demesne, two hides, and that the villans have ten teams, thus estimating that there were altogether twelve hides in-cluding the demesnes. In the Ramsey Survey it is stated that there are in Cranfield, actually, eleven hides, one virgate and a half and one third, or nearly twelve hides, *besides the demesnes*—but the demesne is *reckoned as to the king for ten hides*. Now it would seem that the Saxon estimate of ten

hides was not a measure but a rough estimate of ten hides, where there was in fact a measurable quantity of eleven hides a virgate and a half and a third over and above the demesne, or altogether nearly fourteen hides including the demesnes. If the Domesday Commissioners had proceeded by measure they would have found the eleven hides one virgate and a half and a third, and not have returned ten hides as they did. These eleven hides and a half and a third make nearly twelve hides.   Now the Domesday Commissioners' new assessment is that there is land for twelve *teams*, and I think we must infer that both the assessment of the hides and the assessment of the teams are assessments of rateable value and not measurements, and indeed anyone who knows anything of the process of measuring land can hardly imagine the Domesday Commissioner 'dragging at each remove a lengthening chain.' Again, how is it possible to reconcile such an extract as the following with an idea of measurement? 'It was assessed for four hides in King Edward's time, now for two. There is land for four teams.' [1] But the explanation of the difference comes in the same entry, for it is shown that the estate at the time of the Survey was worth 70s., whereas in King Edward's time it had been worth 100s.; hence the depreciation in value causes a new assessment at a lower rate. Again (i. 137 *a*):

> Earl Eustace holds Kreunge. It was assessed for 29 hides in King Edward's time, and now for five hides and one virgate.   There is land for 20 teams.   In demesne there are twelve hides.   There are *three teams*, and *there might be two more*.   The men have nine teams, and *six more might be used*.   There is pasture for the cattle of the vill.

What can this language mean except assessment anciently by hides, and at the time of the Conquest by teams, and what can be fairer or more just than this mode of assessment?

[1] Domesday, i. 137.

Innumerable instances may be given to show the inequality and unfairness of the ancient assessment by hides. Again, (i. 30 *b*, col. 1), Queen Edith had held Esher and had been assessed for nine hides ; ' nevertheless,' say the Domesday Commissioners, ' *there were then sixteen hides.*' They state that it does not give geld (as it was the king's), but they say ' there is land for fourteen teams.' This clearly again is assessment. The ancient sixteen hides were too small to fully occupy sixteen teams, so the new rate of assessment is set by the Commissioners at fourteen teams. Throughout the Survey, wherever the land had been Saxon, and except in the counties of Derby, Nottingham, Yorkshire, and Lincolnshire, we have the ancient assessment of the hide, but in the counties above mentioned the ancient assessment is all by carucates of land instead of hides, the new assessment being by teams.

In an entry relating to Herefordshire it is stated that Turstin, son of Rolf, has between Usk and Wye seventeen teams ('carucas'). Of these there are in demesne four and a half, the others are the men's. ' Of *this land*' (*de hac terra*), the record goes on, five carucates and a half are claimed by the king's reeves, saying that Turstin took them without a gift. The same Turstin has six carucates of land ('carucatas terræ') beyond Usk, and there his men have four teams. Here we have the word ' caruca' and ' carucata' used alternatively to mean the same thing, but neither word used in Domesday can be strained to mean areal measure—it must mean assessment.

A careful perusal of the Domesday for Rutlandshire shows, I think conclusively, that the object of the Domesday Commissioners in their inquiry was to estimate, but not to measure, the quantity of land which could be profitably ploughed in every manor. They state at the commencement that ' there are in Alfnodeston Wapentake two hundreds, in each of which there are twelve carucates at geld' (that is, paying

geld), and that ' in each of which hundreds twenty-four teams
could be employed,' so that the Wapentake was only assessed
at half its rateable value. In Martinslei Wapentake they
state that 'there are twelve carucates paying geld,' and that
' there may be forty-eight teams employed,' showing that it
was only assessed at one-fourth of its value. The Commis-
sioners appear to have assessed the royal manors in Martinslei
Wapentake at a very low rate, for as to Oakham they say
that ' Queen Edith had four carucates of *land at geld*, but that
there is land for *sixteen teams*,' and they go on to say that ' the
king has two teams, and the villans *thirty-seven*,' and that the
king might employ *four more*. As to Hameldun they say
that Queen Edith had four carucates of land at geld, and they
estimate that there is land for sixteen teams, but they state
that the king has five teams and the tenants forty. Redlington
is assessed for sixteen teams, but the king has four and the
tenants thirty. In the manor of a subtenant of Redlington
they say that ' in his land there might be employed eight
teams (*carucæ*), and nevertheless there are ploughing there
(*ibi arant*) sixteen teams (*carucæ*). From these entries it is
manifest that the Commissioners were estimating (not over
fairly) and not measuring the land. Innumerable examples
of this kind might be brought forward to show that areal
measure was not contemplated by the Survey, but only
assessment of taxable value.

I do not wish for a moment to suggest that there was not
an ascertainable quantity of land, varying in extent according
to locality and soil, which was called a hide or a carucate, and
could be measured, but what I do wish to impress strongly
upon the student of Domesday is that the words hide and
carucate and caruca as they are generally used in Domesday
do not in that record mean any definition of actual measure-
ment, but do mean a rateable assessment approximated to the
actual measurement, but still assessed by the Commissioners

and men of the Hundred *by estimation* — a statement of rate-
able or taxable value approximately arrived at, taking all the
considerations of the quality and condition of the land into
account, and giving a fair valuation or rateable value to every
estate in the kingdom.

From the Ramsey Chartulary we learn that the number
of hides accounted for to the king was not always identical
with the actual number on the estate, and also that land might
lie 'extra hidam.' The learned editor of the Domesday of St.
Paul's notices the variation in the number of rateable hides in
the manors belonging to the Church between the time of the
Survey and the year 1222, and remarks that these changes
are interesting not only as indicating changes in the condition
of the manors as respecting cultivation, but as implying a
power on the part of the tenants *in capite* of procuring from
the crown a relaxation of the burden of hidage.

As with the hide so with the carucate. It was an utterly
uncertain quantity. Wherever we find definitions of the extent
of carucates we find that they vary almost as much as the
extent of the hide, so that every computation of acreage which
is attempted to be deduced from the entries in Domesday
must be fallacious unless we have extrinsic evidence of what
was the true extent and acreage of the carucate within the
manor in question. Even then we shall only arrive at the
acreage of arable, for the carucate or ploughland is described
as so much arable as can be managed with one plough and
the beasts belonging thereto in a year, having meadow, pasture,
and houses for the householders and cattle belonging to it, and
it is thus defined by Statute 7 William III. cap. 29, and see
Coke Litt. 86 *b*.

Fleta, who wrote in the time of Edward I., states, if land
lay in three common fields, then nine score acres to the
carucate, sixty for winter tillage, sixty for spring tillage, and
sixty for fallows ; but if land lay in two fields, then eight score

acres to the carucate, one half for tillage and the other for fallow. This general estimate is confirmed by a curious treatise on husbandry written in the fourteenth century by Sir Walter de Henley, knight, who endeavours to explain that by a little management the plough can be made to cultivate twelve score acres yearly.[1]

I have found about the time of Edward I. descriptions of carucates of 140 acres, 106 acres, 152 acres, and one of 50 acres, and in the Battle Abbey Chartulary we read that the Church of St. Mary of Mildehall has in demesne the land of one plough, *to wit one hundred acres.*[2] It will be seen from these instances that, as in the case of the hide, no exact number of acres can be assigned to the carucate, and the fact is made more evident from an entry in the Chartulary of Ramsey Abbey of the fourteenth century, where the jurors on an inquisition say that there are in demesne two carucates, *but they don't know how much they contain.* That the carucate of the thirteenth century consisted of both arable and pasture may be further shown by the register of Geronden Abbey, where a charter describes half a virgate of land, ' that is to say twenty-five acres in one field and as much in the other field, *with five acres of meadow* : and a virgate of land, that is to say ten acres and a half in one field and as many in the other field, with *two and a half acres of meadows.*'[3] The variations of the virgate, which was the subdivision both of the hide and the carucate, are quite as remarkable. In the Ramsey Chartulary under Cranfeld the jurors say that ' they do not know how many acres make a virgate, because sometimes forty-eight acres make a virgate and sometimes fewer.' I have found descriptions of virgates varying from fifteen to seventy-two acres. The virgate is often described as containing both arable and meadow. Usually four virgates make up the hide, but I

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[1] *MS. Addit.* 6159, f. 221.   [2] *MS. Cott.* Tiberius, B.v. f. 88.
[3] *MS. Lansdowne*, 415, f. 33.

find several cases of hides containing five virgates, and one containing *eight*.

I am sorry to be obliged to detain you with these dry details, but I am obliged to do so in order to lay before you the view that I take of the study of Domesday. I am aware that others more capable than I have made far more extensive study of this question of measurement, and I shall listen with the utmost deference to everything that may be said upon the subject. I have endeavoured to follow Mr. Eyton in his attempt to apply a system of areal measurement to the Domesday return for Dorsetshire, but I confess I am unable to do so, and it seems to me that the examples he cites to prove his theory tend rather to disprove it.

Time does not permit me to go more fully into this question of measurement or assessment, but what I wish to impress upon the future student of Domesday as the result of my researches is that the great Record must be regarded as a great Rate Book and not as a Survey of Extent. If the Conqueror had desired to be informed of the acreage of his tenants' lands he would have directed his Commissioners to ascertain the acreage and boundaries of each estate and to set forth the perambulations in their return; nor would this have been a remarkable proceeding, for we must recollect that the usual Saxon method of conveyance was to convey by charter with the boundaries of the land thereon endorsed. This method of conveyance survived into Norman times in many cases, and the Commissioners had before them the Hundred men and the men of the vill, who would readily have presented the boundaries and estimated the acreage ; but no such thing is done. The Conqueror simply inquires how many teams might be employed and how many there are. It is obvious therefore that at any rate his primary object was assessment of producible value. An assessment of area without taking into consideration the quality and nature of the land would

have been manifestly unfair, but the assessment of producible value was just to all, and conceived, as I have before said, in the highest spirit of equity.

Moreover, it must be recollected that we have in Domesday no mention or return (or if any it is accidental) of the extent of waste land or of the extent of forest, and this fact I think strengthens the argument that no consideration of a return of areal measurement existed in the mind of the Conqueror when he instituted his inquiry.

Of the general accuracy of the return of the assessments, so far as any collation of later records enables us to judge of them, there is very little doubt. All persons interested in presenting them accurately were present, and the return was in the most perfect degree a return to a public inquiry. Of the accuracy of the return of what I may call casual profits, as mills, fisheries, &c. there may be some doubt. If these casual profits were not at the time of the Survey let to tenants, I think that the Commissioners have frequently estimated their value in the gross value without specifying the items, and this particularly applies, I think, to inland fisheries, numerous instances occurring, particularly on the Thames, where several fisheries must have existed which are not specifically mentioned in the return. A remarkable instance came under my own observation in the course of my professional work. On the river Taw· there is a certain fishery which is fished by a fishing hatch at the mill situate between the manors of Monkton and Wear Giffard. In the entry relating to Wear Giffard the Commissioners return half a fishery ('dimidia piscaria'), rendering 40*d*., but the return as to Monkton is silent as to the other half. Now the records of the manor of Monkton show that this fishery has been fished in common by the lords of the two manors for many centuries, and the bailiffs' accounts show that it was the practice to divide the fish equally, even to the cutting in half of the odd fish This, therefore, I take it, is a clear case of omis-

sion from the Record, not that it is accidental omission, but that the Commissioners valued the half fishery of Monkton in the total value of the manor, without specifying it, because it was then in hand and not producing rent.

In some cases the returns of casual profits are much fuller than others. For example, at Limpsfield in Surrey the Commissioners return two stone quarries and three hawks' nests, clearly matters outside their instructions except in respect of the total value. Returns of beehives are frequent, and these kinds of items show principally in those counties of which we either have the original returns, or in which the returns have been less abbreviated, as Kent, Surrey, Sussex, Norfolk, Essex, Suffolk, Wilts, Somerset, Dorset, Devon, and Cambridge, than in the returns for the rest of the counties, as Northamptonshire, Warwickshire, and the northern counties, where the returns are very closely abbreviated ; and it would seem that the entry of these casual profits was only made by the Commissioners in assessing the total value, and *not* as any part of the inquiry required of them ; and it must not be argued because such casual profits are not mentioned in respect of any particular manor, that they did not necessarily exist because they are not mentioned (for we cannot suppose that there were no hawks' nests or stone quarries in England except at Limpsfield and some few other places in which they are noticed). This, I think, strengthens the argument that this great Record must not be treated nor studied as if it were an actual survey by mensuration and particulars, but it must be looked upon as a valuation and rate book, and studied from that point of view.

Of matters of special interest as illustrative of the social life and condition of the people, the careful student will find many interesting entries in Domesday. Time does not permit me to go into such an inquiry, nor have I made the necessary research, but I would notice that there is in vol. ii. p. 59, a

curious entry, showing that a man could endow his wife by a verbal declaration, probably joined with livery of seisin, in the presence of two witnesses, one a Norman and one an Englishman ; and that the Hundred men bore witness to the Commissioners that they had heard the husband acknowledge this.   The practice of making feoffments of land *quasi* public is curiously illustrated by a record of the time of Henry III., in which the claim of the Abbot of St. Osith to land was defeated because the charter under which he claimed was made privately, and *not read in the Hundred*, and the abbot could show no seisin.   At p. 117 of vol. ii., we have an entry which shows that the town of Norwich rendered to the Saxon king 20*l.* yearly, and to the earl 10*l.*, and also, it would appear, one bear and six bear-baiting dogs ('unum ursum et sex canes ad ursum '), which is, I think, the earliest notice of the ancient sport of bear-baiting.   The Conqueror, however, does not appear to have encouraged the grosser sport, but he took instead 70*l.* 'ad pensum Regis,' and 100*s.* in gift to the queen, and a gerfalcon, probably in lieu of the bear and bear dogs.   These are instances by way of example. The careful student will find out others innumerable ; many of them, but by no means all, have been collected by Ellis in his 'Introduction.'

A careful collation of the values of estates as they stood in the time of King Edward, with the value as assessed at the time of Domesday, would be highly interesting, and would, I think, show a very large increase of material prosperity during the Conqueror's reign.   The entries relating to towns and cities deserve especial study.   From them much valuable historical matter may be gleaned.   With regard to the great portion of Domesday relating to the counties, I regard Domesday as an imperfectly worked gold mine.   The quartz has been picked over in places by student after student, and many valuable nuggets they have found ; but to get at

the real value of a mine, the rock must be crushed out, and the text of Domesday, bulky though it is, must be thoroughly analysed and sorted by a process analogous to crushing and washing out—a process of careful tabulation, analysis, and collation.   This, though a great labour, might yet be done, and I would suggest that it might be done as follows.   Let the student make his translation of the text in the form of a return to a parliamentary commission, by way of tabular analysis in columns, which might be somewhat as follows :

Manor and Hundred.	Population T.R.E.
Saxon tenant.	Population T.R. Will.
Saxon assessment.	Stock of demesne.
Saxon value.	Wood.
Land not assessed.	Several pasture.
Norman tenant.	Special items: Mills, Fisheries,
Norman assessment.	Churches, Sundries.
Teams in demesne.	Remarks and memoranda of
Teams of the men.	the Commissioners.

This might be done without any great violence to the text, at any rate of the first volume of Domesday.   The tabulation would have to be altered slightly to suit the forms of the second volume.   The result of such a process would be that what we might call the auriferous quartz would be tabulated and set forth in statistical columns in a readily available and workable form ; and in the last column of remarks and memoranda, which might be called 'the sorting pan,' we should find all the already-discovered nuggets, together with many others hitherto unnoticed, and a mass of golden information, the careful collation of which would give a rich harvest of historical material.

If such a work could be set going by this Society, with the aid of the many devoted students of the great Record

who are spread over the land, it would form a truly valuable monument of the anniversary we celebrate to-day.

Of the practical uses of Domesday, outside its literary value, the principal appears to have been the determination of what was or was not land of ancient demesne, but before the Great Revolution which swept away feudal tenures, it was constantly referred to in the Courts for the determination of questions of tenure. Its uses survive to the present day, and it is frequently referred to in cases relating to manorial rights to show the legal existence of a manor anterior to the Statute of Quia Emptores. Also to show the relative positions of superior manors and sub-manors in questions respecting mining rights and rights of common over the wastes a few years ago. The decision in a great Lincolnshire mining case, involving mines to the value of many thousands per annum, was mainly rested on the evidence of Domesday. In cases relating to fisheries it is evidence of the highest value, and at the present moment I believe there is a question arising at Nottingham respecting the claim of the burgesses of that town to fish in the river, in which an entry at p. 280 may be of grave importance, for Domesday states 'that the burgesses used to fish in the water of Trent, and now they make complaint that they are prevented from so fishing.' There is a remarkable entry on the same page which tends to show that the conservancy of the Trent was entrusted at this early period to Nottingham, and it is stated that if anyone hindered the passage of ships he was liable to be fined 8*l*. Many other examples might be given to show that the practical uses of this great Record are by no means exhausted after a lapse of 800 years.

It has been generally supposed, and is distinctly stated by Blackstone, that the Conqueror imposed upon his subjects the yoke of military tenure, but there is a passage in Domesday at p. 56 *b*, which seems clearly to show that in doing so he was not imposing a new yoke, but only systematising and

regulating anew an old burden. The passage, which is wholly expressed in the past tense, and refers to the time of King Edward, is as follows :

When geld was given in the time of King Edward *the hide throughout Barkshire gave* 3½*d. at Christmas and as much at Whitsuntide.* If the king sent an army anywhere only one knight went for five hides, and for his food and payment 4*s.* were given him for every hide for two months, but this money was not sent to the king but given to the knights. If anyone summoned to an expedition did not go, all his land was forfeited to the king. If anyone having promised to send a substitute, and the substitute did not go, his lord was acquitted for 50*s.* The king's demesne thane or knight dying, left all his arms, and horse with a saddle and another without a saddle, to the king for a relief. If he had any hounds or hawks they were to be presented to the king, that he might accept them if he would.

This surely is a brief statement of the main incidents of feudal service, and is a fragment of history which goes to show that the Conqueror was not imposing new burdens, but only systematising and rearranging the incidence of old ones.

I feel sure that the more this great work is studied, the more will the spirit of equity, order, and justice in which it was conceived be recognised, and the memory of our great Conqueror be absolved from the untrue accusations of shameless greed and rapacity which are cast upon him by the Anglo-Saxon Chronicler, who has been followed by historian after historian almost down to the present day, until this great organiser and founder of this kingdom has come to be looked upon as a ruthless and greedy tyrant, because by his great genius and love of order and law, he in some cases reorganised, in others swept away, the degenerate and effete systems of his predecessors, and established in their place a solid and substantial form of government and economical legislation which has developed into the mighty empire over which her most gracious Majesty at present rules. That the accusations

of the Saxon chronicler are baseless and without foundation,
we have, indeed, his own acknowledgment in the very same
Chronicle, where speaking of the result of William's stern but
righteous rule, he says :

Among other things, the good order that William established is
not to be forgotten. It was such that any man who was himself
aught, might travel over the kingdom with a purse full of gold
unmolested, and no man durst kill another, however great the injury
that he might have received from him.

And here I would refer the Domesday student to the
valuable review of this period of our history which is contained
in the preface to the second volume of my late master Sir
Thomas Duffus Hardy's 'Materials for the History of Great
Britain,' and will read from it his description of Domesday.
He refers to the Anglo-Saxon hatred of the Survey, and says :

The dislike of having their land, their crops, their stock, their
woods surveyed, of making accurate returns to a government
inspector of field and fallow, of ploughs and teams, of pigs and
sheep, is characteristic of a people who regard all official interference
as preparatory to new exactions. But, however useful and even
indispensable such knowledge may be for a just, wise, and philo-
sophic system of public taxation, such prejudices are not confined to
one era in our history. From the violence of those prejudices now,
we may judge what their force must have been when every act of the
new comer was regarded with suspicion ; and we may moreover
judge of the astonishing advance which the Normans had made in
all that belongs to the practice and theory of good government,
when, in spite of such prejudices, they could conceive, carry out,
and complete within a few years so wonderful a monument of
economic science as Domesday. Domesday is a register of land, of
its holders, its extent, its transfer, its resources, its produce, its
deprived and present possessors ; the stock of the manors, the
number of the tenants, cotters, slaves, and cattle employed upon
them. It is at the same time a military register, showing the
national capabilities of defence, the position of the defenders, and
their relation to the crown ; a census of the population ; a survey of
their means of subsistence, their employments, their condition ; a

topographical and genealogical dictionary of all the great families in England ; and a faultless record of real property, its incidences and distribution. From its pages the Conqueror could discover at a glance the state of his revenues, the wealth, the consequence, the natural connection of every personage in his kingdom. As it was the first, so is it the greatest and most perfect experiment which has ever been made by our own or any other people in economic legislation ; and history since then, notwithstanding all the appliances, improvements, sciences, and enlightenment of modern times, can point to no achievement like it.

And now after the lapse of 800 years through which this great Record has served as a reference to settle disputed questions, growing through lapse of time less and less useful until its utility is all but exhausted, we are to-day face to face with a demand for a new Domesday, and this demand comes not from the ruling powers desiring to ascertain the resources of the kingdom, and settle on a just and equitable basis the taxation of the subject, but it comes prompted by wholly different motives from the people themselves. It is asked for not to determine the sovereign's rights against his subjects, but to determine their respective rights as between themselves. The question of land transfer and registration of title is one of the great questions of the day, and, as the Earl of Derby remarked some years ago, it is a question which involves the making of a new Domesday ; but this new Domesday will have to be a very different record from its predecessor—this Domesday will have to be in truth a Survey, and not a rating or assessment. To accomplish the registration and the simplification of the transfer of land now divided and split up throughout the kingdom into innumerable holdings, subject to infinite conditions, liabilities, burdens, and rights, no form of description by writing will suffice. The new Domesday, if it be ever made, must be based on cadastral survey on elaborate and accurate plan, aided by registration of particulars explanatory of the plan. The main difficulty

of easy and cheap conveyance is the strict identification and description of the subject matter. Since the time of the ancient Domesday, when estates were almost entirely estates within a ring fence, the land has been divided and subdivided indefinitely, and now words and writing are inapt and impotent to accurately describe the inextricably interwoven parcels of land and property which form the estates of the present day. Survey, and survey only, and survey by cadastral measurement and plan, can and must be the only basis upon which such a Domesday Book as is now called for can be based. The labour and cost of such an undertaking is beyond all possibility of calculation, but it is called for and will doubtless ultimately be done. The compilation of the ancient Domesday must have appeared at the time to have been a work of gigantic labour, but the genius of the Conqueror did not shrink from the task, and let us hope that now that we are celebrating the 800th anniversary of his great work, we may be incidentally celebrating the inception of a larger and a greater work, the Domesday Survey of Queen Victoria, and that, when it shall be completed, the judgment of future ages upon it may be like that expressed by Sir Thomas Hardy upon the ancient Domesday : that it was ' the greatest and most perfect experiment which has ever been made by our own or any other people in economic legislation,' as we may well hope that with all the appliances, improvements, sciences, and enlightenment of modern times, it may and ought to be.

DISCUSSION.

MR. O. C. PELL said that he had the greatest diffidence in making any remarks on a paper read by so very competent an authority as Mr. Stuart Moore, and it was only because, during two years, he had been much engaged in this subject, and had prepared and read a paper (now to be found in the 'Cambridge Antiquarian Society's Communications,' vol. v. No. xxvii.) that he ventured to do so.

He quite agreed with what Mr. Stuart Moore had said in regard to the equity of the Survey contained in Domesday, and he would shortly allude to a fact which confirmed it. He quite agreed, also, that it is impossible to say with truth that the words '*carucata*,' '*terra ad carucam*,' or '*hida*' (so far as the latter word may mean the land of one plough) point to one uniform measure of land ; but he said this for a reason not advanced by the reader of the paper. It must be borne in mind that the areal *terra ad carucas* of Domesday in any one manor was the area of the land under the plough expressed in Domesday Book by a statement of the number of *terræ ad carucam* in such manor. Domesday not only gives the number of ploughs, but subdivides such statement into lord's ploughs and tenants' ploughs, such tenants' ploughs being very often an association of two or more virgates to work one plough. These virgates, when examined by later MSS., are found generally to be of three classes, one consisting of areas in decimal figures, another in areas of duodecimal figures, and another of sexdecimal figures, and the significance of this fact cannot be overestimated ; as he would shortly point out, they are either in acres of 8, 16 and their multiples, or in acres of 10, 15, 20, 30, 40, and 60 in number, or 12, 18, 24,

36, 48, and 72. The area covered even by these associated ploughs (weighted as they were known to have been by the work that they were bound by their *servitia* and *consuetudines* to do on their lord's demesne) must of necessity be less than the area covered by the lord's ploughs, thus assisted. The *terra ad carucam* of the whole manor (being the area covered by the lord's ploughs, thus assisted, plus the *terra ad carucam* covered by the tenants' ploughs) would therefore, as regards any one plough, be the mean of all the ploughs, demesne and servile. For instance, the lord of some manor might have an area in demesne of 960 acres covered by six ploughs, each taking 160 acres ; and the *homines* of the same manor might also have an area of 960 acres, covered by twelve associated ploughs (four virgatarii forming one plough), each plough taking 80 acres, the two sets covering together 1,920 acres (all in the open fields with roods and acres intermixed), being a mean of 120 acres to each plough, demesne and associated.

The *terra* in such a manor is expressed in two ways in Domesday, i.e. either as *terra ad carucam* for 18 ploughs, or, if each virgate of the *homines* is treated with its two boves as a *terra*, then as *terra* for 54 ploughs ; and sometimes it is expressed in both ways in the same manor. It is impossible, therefore, to say, from reading Domesday alone, what the area of the *terra ad carucam* of one plough in any one manor was, though they could, by ascertaining from later MSS. what the size of the virgate of that manor was, draw a pretty certain conclusion as to it by noticing the number of villani &c. as recorded in Domesday.

But in regard to the uses of the words ' hida,' ' terra ad car.,' and ' carucata ' as units for taxational purposes, the case was very different. Domesday was a rate book, and the unit of assessment must have been definite. That unit was the geldable, not the areal, ' hida ' or ' carucata,' and the size and value of it cannot be ascertained from the ' valet,' or

'summa' of values, of the whole manor ; because such 'summa' contains the values of the several appendicia belonging to the manor, such as the rents and services, the mills and fisheries, and several other things, over and above the bare land actually taxed.

But luckily it was possible to find many small plots of land, disentangled and unconnected with any of these appendicia, recorded in Domesday with their value annexed, being the value of such land *per se.* Two cases are sufficient for illustration : one is the land of Hardwinus in Belesham (Domesday Book, f. 190 *b*), Cambridgeshire, where 80 acres are taxed at thirteen shillings and fourpence, and Harduic in Cambridgeshire (Domesday, f. 191 *b*), where ten acres are taxed at twelvepence. It will be observed that at Harduic it is one and one-fifth of a penny per acre, at Balsham it is just twopence per acre, and that 10 anglico numero = 12. Taking one pound or *libra* of silver to represent the taxable unit (and speaking for himself alone he had no doubt that it did), it will at once be seen that, assuming this fact, it would take 120 acres to make the pound at two pence per acre, and 240 acres to make the pound at one penny per acre. But in a two-course manor (as in the beginning of things it probably would be) the fallow, or one-half of it, would be in each year uncropped, and if it was ' wara ' (hence the word ' ad warectum') that is, 'jacens in communi,' of or belonging (as to rights of common on it) to the whole body of tenants, then, only 120 acres would be taxed, but at the rate of two pence per acre, which equals one penny per acre on the two hundred and forty acres. *Of this untaxed fallow Domesday Book takes no notice.* The ' hida ' or ' carucata ' was therefore (when used to express the geldable unit) a librate, or one pound's worth of land— that is, 120 acres at twopence, where the sole right belonged to the owner, or, where the fallow was ' wara ' and all had liberty to common on it when fallow, then 240 acres at one ·

penny per acre. There are repeated instances of this in old
MSS. : for instance, in the Survey of Littleberi in Essex, in
Add. MSS. No. 6165 of the British Museum.

But of course the question arises, How does that tally with
the case of Harduic and its taxation at one and one-fifth
of a penny ? It arises in this way. A libra or pound of silver
may be divided in two ways—either according to the divisions
shown in Troy weight, or those shown in Apothecaries' weight.
He must now ask them to carry their minds back to the time
when the Anglo-Saxon and other tribes arrived in England.
They would find the arable land in open fields and in acre
strips, so well described by Mr. F. Seebohm in his ' Village
Community.'

The Anglo-Saxons appear to have divided their libra like,
and perhaps by adoption from, the Romans; their scilling was
of four peninga, and seventy-two went to their pound of silver ;
consequently one and one-fifth peninga would equal one
denarius of a people dividing the libra according to the
division of Troy weight, when sixty shillings would go to the
pound. That the original Anglo-Saxon shilling was four
peninga appears from sec. v. of Ina's Laws (Thorpe, ' Ancient
Laws and Institutions,' vol. i. p. 140), where an ox's tail is
valued at one scill of four peninga, and sec. xi. of the Con-
queror's Laws (p. 472), where the English penny is stated to
be fourpence. In the treaty between Alfred and Guthrum
the Danish king it was necessary, for stating the amount of
' weregilds,' that some form of account should be adopted that
would fit in to the mode of accounting used by the different
kingdoms, and a solidus of five denarii of twenty-four units
was adopted. (See the treaty, Thorpe, vol. ii. pp. 481–483,
and more especially the heading ' De eodem in Mercennorum
laga,' p. 484, where 7,200 shillings make 120 pounds.) None
the less the old shilling of account of four denarii of eighty
units still remained and was referred to by the Conqueror, as

he said before. He must ask them therefore to keep in mind that the Anglo-Saxons divided their libra of silver like the Romans, and that the Danes and Normans divided it as the English do now. Moreover, the Angli had one method of counting (differing from others), by which 120 with them really meant 144 in numbers and 240 meant 288. In just the same way they would find that their libra of silver, i.e. 5,760 grains or units, divides up into 288 units of 20, that is into 72 shillings of fourpence of 20 units each. When the land was first occupied by the Angli, the Jutes, and others, the acre and good strips, existing as such long before their coming, would be distributed according to their respective ways of counting, coinciding as it did with their respective divisions of the libra. In some settlements the men would receive virgates of 10, 20, or 30 acres, in others 12, 24, or 36 acres, and each answering to the respective divisions of the libra. The libra of silver would in this way be spread over 240 acres in the one class of settlement, and over 288 acres in the other. When, however, the first Domesday was proceeded with, the difficulty of course arose, how the 240 acres answering to one pound of silver could be reconciled with 288 also answering to one pound of silver.

The difficulty was apparently got over in a way most advantageous to the Anglo-Saxon men (if their lords, Saxon or Norman, permitted them to keep it and did not grasp the benefit themselves). This was done by putting out of taxation, 'extra hidam,' one-sixth of the Anglo-Saxon land ; thus of 12 acres two would go out, of 24 four, of 36 six, and so on, and out of 288, 48 acres. Thus it is that where the word hida is used as to the amount taxed ' erga regem,' if it is dealing with Anglo-Saxon land, one-fifth more must be added on to ascertain the actual area. The case of Cranfield, alluded to by Mr. Stuart Moore, is a case in point ; the ' decem hidæ erga regem ' means in effect ' decem libræ,' or 1,200 acres

of taxed land, but 1,440 acres (not 1,220) of land in area. To show that he did not speak without book as regards this, he would refer them to the Hundred Rolls of the year 1279, being a Domesday of Edward I.'s reign, or a return made for taxational purposes. At one place in vol. ii. the officers deal with Shelford Magna in Cambridgeshire, and set out for purposes of taxation, under the heading ' De Servis,' a list of tenants by name holding 15 acres each, and under the heading 'Aliis servis,' another list of men holding seven and a half acres each. In the Cottonian MS. Claudius, C, xi. they would find a survey of the same manor in the year 1277 (only two years earlier) where precisely the same people hold, the one class 18 and the other class 9 acres, thus showing that the area of taxed land was one-sixth less than the actual area : or, in other words, one-fifth must be added on to the taxed land in order to ascertain the real area. Moreover, in some cases the definite names of 'sexacra' and 'sexlond' were given to this sixth ; thus in the Domesday of St. Paul's (Hale, p. 46), there will be found an entry showing that Ralf fil letlede held ' I acram sexacram extra hidam,' and in the same page ' II sexacras extra hidam.' So also, at page 49, there is a list of persons who hold eight acres of ' sexacras,' and another in regard to 'sexlond.' Reverting back to Harduic, it will be at once seen that ten acres taxed at 12 denarii (each consisting of 20 units) really represents a taxation of one denarius (of Norman denarii of 24 units) per acre.

The practice of counting by the long hundred, i.e. 120 for a hundred, still exists in the neighbourhood of Lübeck, and also in England ; and he would conclude by quoting a passage in Frank Buckland's Life (3rd edition, p. 309) : ' The crab-fishers of Cromer have a peculiar arithmetic ; thus two crabs are counted as one. The two crabs being called a cast, six score crabs are called a hundred. At Cromer, therefore, a hundred crabs means 240.' But their forefathers were more advanced

than that when they got from William the Conqueror for a hide of wara (equal to 288 acres) a taxation of only 120 acres.

Sir J. B. PHEAR agreed with Mr. Stuart Moore in the view that the Domesday Book was not a survey of *extent*: that is, it did not profess to give the acreage of the manorial area, or any approximation thereto. In a sense it was a book of manorial assessment, and so far was (as Mr. Stuart Moore termed it), a sort of rate book: he did not, however, think with Mr. Stuart Moore that the primary object of its being compiled was that it should serve as a means of taxing in the modern sense of that word. No doubt the capacity and the liability of the manorial community to take its share of public burdens, among which, of course, was the payment of the Danegeld when levied, was apportioned or measured in terms of the hide, an ancient unit, which in name pointed to the house, homestead, or family, and in the concrete was the quantity of arable land actually tilled by the Anglo-Saxon eight-ox team, with its co-operative plough staff. And it seems manifest that under the earlier form of rural economy, the strength and substance of each village community bore an immediate relation to its ploughing power. But it was not for the purpose of rectifying the basis upon which the Danegeld or any similar tax should be levied that the Domesday Survey was undertaken. Its main object, as he apprehended it, was to provide the Barons of the Exchequer with an authoritative record by which their court should be guided in taking the half-yearly accounts of the sheriffs.

At the time of the Conquest and before, the revenue of the crown was not the result of any regular system of taxation, as we understand it. To use an old phrase, ' the king lived of his own.' He had his manors like other lords, and the pro- duce or ' firms ' of these royal demesnes constituted the main

portion of his revenue.   He was also entitled even under the Saxon system to certain so to say feudal incidents, which were enlarged under the Norman rule in respect to all other manors besides his own.   The sheriffs of counties were his officers for collecting the firms from the bailiffs of his manors, and all other royal dues, for which they accounted twice a year before the Barons of the Exchequer.   The Domesday Book afforded a complete register of the manors existing at the time of its compilation, the holders of them, and all such facts in relation thereto as were needed to enable the Barons to check the sheriff's collections and audit his accounts.   It was in essential character a series of short abstracts of the different manorial bailiffs' annual accounts, verified locally by the Domesday Commissioners.   This explains the comparative shortness of the period of time within which the Commission performed its work, a period quite insufficient for an original land survey and measurement of extent even of the roughest kind.

On the
Turkish Survey of Hungary, and its Relation to Domesday Book.

A STUDY IN COMPARATIVE HISTORY.

By HYDE CLARKE, V.P.R.Hist. S.

IN the discussions on the question whether the Domesday Survey was the issue of a system of registry of written records or of oral communications, I maintained that however minute the information appears to persons here, it is within the bounds of that which is orally communicated and transmitted in many regions and many epochs of society.

Indeed all the particulars in Domesday are such as would be known to a village head or chief in Turkey, or in any Asiatic country. He would likewise know what the particulars were at a former period, equivalent to T.R.E. These are the particulars which the head of a village has to keep in his mind for requisitions in foreign or civil war, taxations, and impositions.

In some parts of Turkey the Mussulman village school-master, or *hojah*, may commit memoranda to writing, or the village scribe, or *mahto*, in some parts of India, but many village heads of the subject races are ignorant of writing. Where records are kept is not in the villages, but in the superior division equal to the Hundred.

Armin Vambéry, in giving a review of the literature of

Hungary for 1886,[1] enumerates one work relating to the ancient Turkish occupation of Hungary, which illustrates the system of written registration, and affords an example of records of the cadastre class.

The work by Messrs. Velios and Kammerer is styled 'Magyarországi Török Kinestári Defterek,' which he translates 'Treasury Lists of the Turks in Hungary;' more literally it would be ' Registers of the Turks in Hungary.' *Defter* is indeed a register kept by a *defterdar*, and in this instance refers to the *defterdar* who was the chief accountable officer in an administrative division under the Turkish empire.

Professor Vambéry observes : ' These registers constitute a most remarkable monument of Turkish rule, showing as they do the painstaking administration of the Ottoman civil and military officers of that time.   Not only every town and place of note, but every village has a special register, in which the name of every peasant, and the quality and quantity of his land, are accurately put down.'

It will be seen that the form is that of Domesday.   Professor Vambéry says the details are accurately put down. He means with precise figures, for the quantities are estimated and customary, the Turkish *dunum*, like the English hide &c., not being measured by survey.

The particulars in Hungary would be furnished by the local heads to the authorities of the *kaza* or hundred, and the mukhtars or elders would be chiefly 'Magyars,' giving unwritten information recorded in Turkish in the *defter*.

The book above mentioned may be recorded as an illustration of Domesday and the cadastre system.

There are many features in Turkish rural districts which illustrate those of Domesday.   Indeed it is in a country like Turkey that the history of various epochs may be seen in its real conditions.   The village has its woods and common

[1] *Athenæum*, January 1, 1887, p. 21.

pastures with rights of pasturage analogous to Domesday. It may be that practices supposed to be peculiar in Asia may hereafter explain those at home. A fruit-bearing tree, as an olive, is a property separate from the field on which it grows, and its ownership will pass separately. In the woods the honey trees also are under conditions different from the other trees. Honey trees may belong to the village community, or a honey tree may have an individual owner. As a land commissioner in Asia Minor, I was called upon to award compensation for such trees. A tree would be worth an acre f arable land, and might be worth more. In Asia for thousands of years, as in England for centuries, the wild honey serves as a resource for home food, and is a commodity for outside sale ; of importance before sugar was introduced, and still, in the shape of *helwa*, as in the time of the Greek settlers and conquerors in Asia, able to hold its own.

There is a practice in Asia which is the same as that lately exercised in Spain with regard to the pasturage of the flocks of merino sheep, and which is likewise of remote antiquity and dependent for its origin on the relations between the nomad or pastoral tribes and the agricultural population. Over a great part of Asia the nomads are still to be found, and the Kurds and Turkomans may be seen on the shores of the Black Sea and the Mediterranean with herds of kine, sheep, goats, horses, and camels. When the crops are gathered in, the nomads claim to pasture, and to remove fences where existing and other impediments. Certain plots and gardens are, however, recognised as enclosed. It is this right of late pasturage called *bozook*, which has impeded the substitution of the late maturing American cotton for the short staple cotton, which matures earlier.

The condition of common pasturage in Domesday may represent a survival of the general tradition as to pasturage throughout the ancient world.

Tillage in Asia, as in Southern Europe, depends on the possession of plough oxen, and the holdings correspond to the working of the ploughs, as in Domesday, and are limited. The division of the crop depends on the ownership of the oxen by the lessor or the tenant. If the tenant finds the oxen, then he takes the larger share.

In the division the seed, about one-fourth of the crop should first be set aside, but sometimes the tithe is taken. The tithe, or Government tax or proportion, is always set aside before division between the land-owner and tenant. These are the general principles, but in the application there is great diversity.

Land of itself is of no more real value in Asiatic Turkey than it can have been at Domesday Survey, or than it is in a new colony. I have awarded as the value of land as good as any in the prairies from five shillings to twenty shillings per acre. In the purchase of a large estate the land would not be measured off, nor the outer bounds in woods and hilltops be defined. As has been cited during the conference with regard to the bounds of Sussex and Surrey, so in the East the bounds of properties or administrative divisions may meet in an undefined region.

The quality of land, even if it be a deep black alluvial mould, forty or fifty feet deep, is little regarded. Common field or *tarla* has a nominal price, but arable land, if it has not gone back to *tarla*, has its price. In the case of land which has been cleared for cotton at an expense of twenty pounds an acre or more, it has its value, equivalent to European rates, and so likewise have vineyards, fig and other orchards.

Until the alteration made by the great Sultan Mahmood in our times, much of the land was held as a military fief or *timar*, and the country was covered with a body of tenants *in capite*. The princely or baronial timariot, living in the castle which was the head of his barony, assigned portions to his

military and household retainers, and they again subinfeuded. Many of these were relatives of the tenant *in capite*, and constituted a military class. The tillage was largely carried on by the descendants of the ancient cultivators.

Thus the conditions of William the Norman's time have been seen by many Englishmen and others. Against these great barons the Sultans were in constant struggle, sometimes in actual warfare; sometimes only retaining their nominal superiority by conceding the local functions of administration to the powerful rebel.

What followed the suppression of the timariots, and what we have seen, is a picture of the decline of the Norman barons in England. Many of the timariots suffered under charges of treason ; others, having no longer the resources of war to maintain their expenditure became embarrassed, alienated their estates and succumbed to the usurers. The retainers remained on their small properties, and constitute a petty squirearchy of yeomen, holding inferior offices in local administration, and largely supplying the ranks of the subaltern officers in the newly disciplined army.

In the main, the greater barons in Asia and Europe have fallen, while the large body of the squirearchy fairly holds its ground.

The tenant maintains his position by the very nature of it. The Norman baron might displace the English thane, but he could not displace the English tenant. The cultivator is a cultivator. The Norman cultivator could not practically be displaced from Normandy. Normans and the Norman warrior did not want to cultivate in England. This is a chief and natural cause of the few Frenchmen enumerated in the Survey. The timariot was under the same conditions. His Mussulman retainer would live on the fief, and in peace would enjoy his horse and his greyhounds, but the native cultivated.

To cultivate a country there must be a cultivating class, adapted to the land, to the soil and the climate, and this population will hold its own. The usurer may remove the proprietor, though it does not always suit him to do this ; but unless there is a large population competing under land hunger, he cannot, except at his own loss, dispossess the cultivator.

The tenant of Domesday was sheltered and protected by his personal value, and any surplus of population was drawn off to the cities or to war and adventure. The dwelling and the outhouses are of no independent value, as they are mere easements necessary for the cultivator. No one will buy these over a tenant's head. So, too, a steady vitality, it will be found, was given to the subtenants of Domesday, and they survived to profit by better social conditions when those of the former epoch had passed away with the superiors of the epoch.

Many of the observations here made apply to large portions of India, and of other parts of the world. Thus the study of Domesday has to be pursued as one of comparative history, obscure for the time in our understanding of the details, but capable of explanation and illustration more from living institutions than from passages in books. Chance survivals in our country may afford us some materials of comment or rather of conjecture, but the wide field of the world must be surveyed for practical and working facts competent to afford fair comparisons.

Pursuing the parallel between Domesday and Turkey, it will be seen that the owner or purchaser must himself, though legally free, be practically *adscriptus glebæ*. If not on the spot to receive his dues in kind, under the metayer system it goes hardly with him. Therefore he can only be an absentee by means of the ballivus. This is a person not to be implicitly depended upon. If possible he is one of the family. He lives on the land, of which he must have some knowledge, and he takes care of the domain. One of the difficulties

in the way of a town-living usurer foreclosing is the want of a ballivus, who is not to be supplied from towns.

In a country thinly peopled and with bad communications, corn, the general crop, is not saleable except in times of dearth. In good times all are producers, and compete for the small supply of the towns. After Domesday the wealth of England must have been created and developed by its river and water communications, if not before, for the country was rich T.R.E.

It must be observed that the tithe is a means of abstracting customers from the cultivator. In England the monasteries were the chief receivers of tithe, and were therefore sellers. In Turkey the tithe is the land-tax belonging to the Government. The economical result is to narrow the market.

Incidentally it may be observed with regard to Domesday that the tithe was not appropriated generally to a parochial clergy, and information is wanted as to the distribution of churches and priests. Both might exist in a manor, but they had no necessary connection, and no necessary title to the tithes.

The landowners claimed the disposal of the tithes for the ecclesiastical purposes to which they were applicable. In preference to devoting the tithes for parochial endowment they dedicated them to the endowment of new or the enrichment of old monasteries. The same practice had prevailed in Normandy before, and also concurrently. The lord gave the tithes to his priory, the subtenant gave small parcels of land, or other property (as the charters in the ' Gallia Christiana ' &c. show).

Thus it was that England became covered with the new priories, at small expense to the barons. The parochial clergy were subsequently endowed by the care of their chiefs, the bishops, and in concert with the abbots and priors. As on the dissolution of the monasteries their tithes were presented

to laymen, it must be the case that the tithes of many parishes
have never been in the possession of the parochial clergy, as
is generally assumed.

The disposing power of the lord or baron was not termi-
nated by the grant of the tithes to a monastery. This is
shown in the instance of the Limesis. Ralph de Limesi, then
residing in the south, founded the priory of Hertford, and
endowed it. Among the tithes afterwards assigned were the
tithes and church of Maxstoke in Warwickshire.[1] On the ex-
tinction of the male line, Clinton, the heir of the half barony,
founded the priory of Maxstoke, to which he transferred these
tithes. Under these circumstances it seems difficult to conceive
that at Domesday the doctrine can have prevailed that the
tithes were the freehold of the parson, or that he held any
freehold.

The relations with the Ulema or ecclesiastical body in
Turkey, in some respects worked out as in England. What
may be called the Church acted as a compact unit, endowed
with civil privileges and spiritual powers. In a state of
society where life and property were exposed to hazard,
persons in Europe became tenants of the monasteries for
their own lands. After the Conquest the monasteries appear
to have retained many men as warriors for their own defence
and the performance of military services. Thus the small
squirearchy was subsidised.

In Turkey, under uncertain political conditions, a very
large part of the lands and houses has been made what is
called vakuf, and assigned for various ecclesiastical services,
sometimes by the founder of a mosque or other institution,
and sometimes for simple protection of property. The tenant
was reinstated in his land, paying a small chief rent, but on
the failure of male heirs the land lapsed to the 'Church.' As
vakuf property increased, so was there a disposable surplus.

[1] See De Limesi in Dugdale, *Baronagium, Warwickshire, Monasticon.*

In the Middle Ages, too, further property was with accumu-
lated surpluses purchased by monasteries ; so in the East new
properties were purchased as vakuf.

As at the dissolution of monasteries, so under Sultan
Mahmood, a great extent of property was found to be in
mortmain, and the Ottoman Government is now administer-
ing this by commission, and providing for the enfranchise-
ment of ecclesiastical tenures.

As in England the tombs of the baron are found in his
priory, so in Turkey are those of the Dere Bey (or valley-
lord, as he is now called) around his mosque.

In the economical conditions of such lands and popula-
tions, the imposition of a Danegeld or money tax is particu-
larly odious, and felt as a great oppression. It carries off
every coin obtained in prosperous years, and puts the other
valuables in the hands of the usurer. The general state is neces-
sarily one of barter, and the use of coin is only exceptional.

As money can be raised by the Government on such
taxes in advance, the levy falls into the hands of the lenders
and the farmers of their rights, who exercise all possible
oppression. Legal rights of the population are thereby dis-
regarded. As confirmed in Magna Charta, so elsewhere, the
working bullocks are legally exempt from seizure, but even
this primary condition of social existence is frustrated, and
a population may be thrown into a condition of misery for
years, and land may go out of cultivation, through the exac-
tions of the hated publican or farmer of the taxes. The pub-
lican and his servants in Judæa, in Norman England, or in
Turkey belonged to the foreign and less esteemed races.

A feature of the Domesday Survey also recognisable in some
parts of Turkey is the prædial slave. He is there a negro.

The village herdsman taking out the herds and flocks to
the common pasture is an institution even of wider applica-
tion than those hitherto referred to.

Frankpledge takes its natural place, and a fine on the village community is the great resource for the stoppage of the robberies and misdeeds of outlaws harboured within its domain.

A marked difference between Domesday England and modern Turkey is the number of the smiths in the former region and their absence in the latter. The wright, the maker of wooden ploughs, tools, and wagons, is common to both; but long distances may be travelled in some parts of a country like Turkey without finding a smith. The shoeing-smith is provided with ready-made shoes and nails. In many parts of Turkey, and in Hungary at the time of the Survey quoted and now, the provision of iron is made by travelling iron-workers (usually gipsies). It has been supposed that England was dependent on the ironworks recorded in Domesday, but it is possible that the supply of iron as of charcoal was not, as we suppose, dependent on fixed establishments. In India, Turkey, Hungary, the migratory ironworker makes his own small furnace two feet square, and smelts hæmatite and other suitable ores, producing an iron or mild steel at one process, wrought into shoes and nails, and sold about the country.

Domesday Survivals.

By Canon ISAAC TAYLOR, M.A., LL.D., Litt. D.

DOMESDAY BOOK is a vast mine of materials for the social
and economical history of our country, a mine almost inex-
haustible, and to a great extent as yet unworked. Among
national documents it is unique. There is nothing that
approaches it in interest and value except the Landnámabók,
which records the names of the original settlers in Iceland
and the designations they bestowed upon the places where
they settled, and tells us how the island was taken up and
apportioned among them. Such a document for England, de-
scribing the way in which our forefathers divided the territory
they conquered, and how 'they called the lands after their own
names,' would indeed be priceless. But the Domesday Book
does, indirectly, supply materials for the history of the
English as well as of the Norman Conquest, for it records
not only how the lands of England were divided among the
Norman host which conquered at Senlac, but it gives us also
the names of the Saxon and Danish holders who possessed
the lands before the great battle which changed all the future
history of England, and enables us to trace the extent of
the transfer of the land from Englishmen to Normans; it
shows how far the earlier owners were reduced to tenants, and
by its enumeration of the classes of population—freemen,
sokemen, villans, cottiers, and slaves—it indicates the nature

Even if we did not know of the probability of a great irruption of the river to cause this discrepancy, a flood of some kind would be one of the most obvious explanations.

If we suppose therefore that, after long occupation and cultivation, ... the land had gradually been won for the king ; that great embankments had been made and annual labour bestowed to keep them in repair ; but that, under the oppression of the Normans, the land was allowed again to fall a prey to the restless tide, we may, it is more than probable, have found a good working theory for the early history of the southern suburbs.[1]

We could not desire a better instance of the unfortunate results of copying from Domesday without an understanding of its language.

In one exceptional case among these reductions we find Domesday quoting no less than four assessments. This is that of Beedon, Berks (see also p. 100) :

Tunc se defendebat pro x hidis, modo pro viii hidis. Tamen fuit pro xv hidis, sed Rex E. condonavit pro xi hidis ut dicunt (i. 58 *b*).

It is curious to find, in an assessment list of about the end of the twelfth century, the assessment here assigned to the Confessor (eleven hides) accepted.[2]

It is important to add that these strange reductions became under Henry I. a matter of practical importance. For instance, in Berkshire, we read thus in the Pipe Roll of 1130 :

Robertus Greuesac. . . . debet lii marcas argenti et dimidiam ut Manerium de Burwardescote geldet amodo pro vi hidis. . . .

Willelmus girbertus debet xlvii marcas argenti et dimidiam ut Manerium de Burwardescota geldet amodo pro vi hidis.[3]

On turning to Domesday we there read of the manor of ' Boroardescote ' :

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[1] *History of London*, ii. 267–8.   [2] *Abingdon Cartulary*, ii. 312.

[3] *Rot. Pip.* 31 Hen. I. Both men were to pay in instalments and to find sureties for doing so.

Ipse Comes tenet Boroardescote et Robertus de eo. Heraldus comes tenuit. Tunc se defendebat pro XL hidis, modo pro VI hidis (i. 60).

We learn, in the first place, from these entries that financial extortion was at work, and that it had taken the form of the crown repudiating the Domesday assessment of six hides. By the Domesday assessment I mean, of course, the strangely lowered assessment which I have just discussed above. That the under-tenants (who were the parties affected) had clearly been paying on this lowered assessment is proved, I take it, by their anxiety to have that assessment confirmed. It strengthens the impression that in these reductions we have a local and abnormal phenomenon when we find the crown, as here, refusing to recognise their validity. I gather that the agents of the crown, eager by hook or by crook to satisfy the king's greed, pitched upon such cases as these, and, proceeding by a kind of 'quo warranto,' demanded the production of the Royal writ reducing the assessment of the manor.[1] In default of this they would claim payment on the pre-Conquestual assessment, here forty hides. The tenants, in their anxiety to retain the existing low assessment, would offer to commute the difference, while the crown, ever eager for prompt returns, would encourage them so to do by offering favourable terms. This would at once explain the payments recorded in the Pipe Roll.[2]

Now to commute by a payment of a hundred marks (66l. 13s. 4d.) an assessment of 34 hides (the extreme increase which the crown could demand) would imply twenty years' purchase, if we reckon the tax at two shillings annually on the hide, the rate at which it was certainly levied at the period of this Pipe Roll. But twenty years' purchase was an impossible rate in those troubled times, and still more so in a case

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[1] Such a writ as the Survey, we have seen, refers to in the Gloucestershire cases
[2] Compare the case of Etone (*Rot. Pip.* 31 Hen. I. p. 125).

where the terms must have been favourable to the tenant in order to induce him to commute. What is the inference? Surely, that at least at this period, the 'hide' must have been liable to some further payment than two shillings a year. Whether this further payment was of the nature of a local levy, and if so, what, I will not presume to say.

One would gladly learn if this action of the crown extended to other parts. It is just what one might have expected in the previous reign from Flambard. The mysterious story of his revised edition of the original Domesday Survey has never been really explained.[1] Dr. Stubbs has cut the Gordian knot by suggesting it as 'probable that the whole story is a misapprehension, and is to be referred to the Domesday Survey.'[2] I am quite unable to concur in this solution of the problem. Not only is the story told of William Rufus and his minister, not of the Conqueror and of his, but the precise words which Ordericus employs ('incitans ut totius Angliæ reviseret descriptionem ') prove that he was writing of *a revision* of Domesday, for ' totius Angliæ descriptio ' was the term specially applied to the Great Survey of the Conqueror. Though I cannot myself solve the riddle, I think that by ' mensuris quas liberales Angli jussu Edwardi regis largiter distribuerant,' Ordericus must be referring to what Mr. Eyton has described as the ' beneficial hidation of Anglo-Saxon times.' This obsolete assessment was, indeed, from the first, a stumbling-block to the Norman administration, and it is clear that one of the main objects of the Domesday Survey itself was to obtain a register of real, as distinct from assessed, value. This view is confirmed and illustrated by the great Carucage Survey of 1198.

Before leaving this point, it may be observed that the district affected by the reduction may have been largely devastated at the time of the original invasion, but how far, if at

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[1] Ordericus Vitalis, viii. 8. [2] *Const. Hist.* i. 303.

all, this may be held to account for the reduction in question, I do not profess to explain.

It is difficult to overrate the importance of the Danegeld in its bearing on the study of Domesday. For the present, however, I have only space to allude to a single point, the light which it throws upon the hundred. Just as the Domesday Survey itself was based upon inquests in the hundred courts of the land, so the hundred was the fiscal unit for the collection of Danegeld, as is proved by the *Inquisitio Geldi*, and so when that geld was unpaid or in arrear, it was in the hundred court that the king's fine (*gyldwite*) was imposed on the offending individual. But in a still more special and direct sense does Danegeld, in connection with the Domesday, throw light on the institution of the hundred. What are we to say to such an expression as that Bedford was assessed at ' half a hundred ' ;[1] Cambridge at ' a hundred ' ;[2] or Stamford at ' twelve hundreds and a half'? With the latter case I have dealt in my paper on ' Measures of Land,' and have shown that these hundreds being the small Danish ones of Lincolnshire, such an assessment would only represent a hundred and a half in the hidated districts. But just as the small Danish hundred is known to have contained 12 carucates, so I contend the English hundred must have been here reckoned for purposes of assessment as containing 100 hides. For obviously assessment could not possibly be expressed in terms of the hundred unless that hundred represented some definite number of hides. I contend that by the hundred, in

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[1] ' T. R. E. pro dimidio hundret se defendebat et modo facit in expeditione et in navibus ' (i. 209). Dr. Stubbs erroneously states that ' The town of Bedford paid towards ships as much as a third [*sic*] of a hundred. Domesday i. 209 ' (*Const. Hist.* i. 105). Besides, there is nothing here about paying towards ships. The assessment merely determines the contingent of men (i.e. ten) due from the town in landfyrd and scypfyrd.

[2] ' Pro uno hundret se defendebat T. R. E.' (i. 189).

this sense, was meant a hundred hides. Do not suppose that I am here discussing that ancient problem the origin of the hundred. I merely contend that at this period it was, if you will, the legal fiction that a hundred contained a hundred hides. I have recently noted in the Survey a curious passage in point. We read of the Worcestershire hundred of Fishborough that Evesham Abbey has there 65 hides, of which twelve are free (i.e. from geld), that there are also there 20 hides of Dodentree, and that the fifteen hides of Worcester make up the hundred.[1] The document with which this passage should be compared is the very curious Anglo Saxon record belonging to this period, and printed by Ellis as illustrative of the hundred, and giving a long list of hundreds, each of them divided into 100 hides.[2] So, too, the episcopal Liberty of Oswaldslaw, to which I have alluded more than once, comprised originally three hundreds, and is entered in Domesday as containing 300 hides. I hold that my theory is confirmed by such cases as Shrewsbury, which in Domesday is assessed for geld at 100 hides, or Chester, which is similarly assessed at 50. See how this bears on the whole question of burghal development under the English system. The Anglo-Saxon system having originally only two administrative units, the hundred and township, or *pagus* and *vicus*; when that feature, new to Anglo-Saxon life, the borough, gradually arose, it received not a new organisation but the old organisation of the hundred, adapted as closely as possible. When the borough was too small to be treated as a hundred, it was awkwardly treated as a *half*-hundred. In my own district we learn from Domesday that Colchester was then a hundred of itself, but Ipswich and Maldon *half*-hundreds. When these boroughs had to be assessed for the quota due

[1] 'In Fisseberge Hundret habet æcclesia de Evesham LXV hidas. Ex his XII hidæ sunt liberæ. In illo Hundredo jacent XX hidæ de Dodentreio, et XV hidæ de Wircestre perficiunt hundret' (i. 176 *b*).

[2] *Introduction to Domesday*, i. 184.

from them for Danegeld, the 'hundred' boroughs, I hold, were assessed as at Shrewsbury at 100 hides, and the half-hundreds at 50, as at Chester. But this would be only where no special composition had been purchased or wrung from a weak and often needy government. It is this practice of special arrangement which gives such complexity, and indeed obscurity, to Danegeld and Domesday finance in general so far as the boroughs are concerned.

Exeter for instance, to take a striking case, had procured for itself the almost nominal assessment of five hides, and had further obtained the special privilege that it should only be called upon to pay when London, Winchester, and York paid. This is one of the most curious and tantalising glimpses that we are given in the whole of Domesday of the financial system of the period. It illustrates on the one hand the vicious system in which liberty was represented by privilege and exemption—privilege and exemption at the cost of others; and again it raises the striking question : Had London, Winchester, and York the power of granting a Danegeld, or at their pleasure withholding it, when it was paid by the rest of England. Then further we have the mysterious commutation of Danegeld for a special contribution towards the payment of the king's housecarls, the prototypes, as you know, of our household troops. This practice, which brings the Danegeld itself into a still more direct connection with that famous Danish body-guard, deserves more attention than it has yet received. But I must pass on now for want of time.

Keeping to the assessment of towns in Domesday, we find Bridport and Malmesbury assessed at 5 hides each, Dorchester, Wareham, and Hertford at 10 hides, Worcester at 15 (they were counted, as we have seen, in Fishborough hundred), Bath and Shaftesbury at 20, &c. Now what I want you to notice here is this. Like the hundred and the half-hundred, all these assessments, you see, are multiples of five hides. Why

was this ?   It was because, just as in later days, our towns and
counties had their special assessments for the quotas due
from them to the land-tax and to the militia, so these Anglo-
Saxon towns had to be assessed not only for the Danegeld
but also for the territorial military service.   Now five hides
was the unit of assessment for the purpose of military service.
Thus Domesday tells us of Exeter, that 'Quando expeditio
ibat per terram aut per mare serviebat hæc civitas quantum
v hidæ terræ.'   That is to say that when the fyrd was raised,
whether *landfyrd* or *scypfyrd* as the English would have put
it, Exeter had to send the quota due from every five hides.
Thus this military quota is proved to be a fixed quantity, and
that fixed quantity was one man.   We see this in the Berk-
shire entry: 'Quando rex mittebat exercitum, de quinque
hidis tantum unus miles ibat.'   'When the king [i.e. King
Edward] sent forth his host to war, one warrior was due from
every five hides.'   We see it again in the case of Malmes-
bury :

Quando rex ibat in expeditione vel terra vel mari habebat de hoc
burgo aut xx solidos ad pascendos suos buzecarlos aut unum
hominem ducebat secum pro honore v hidarum [1] (i. 64 *b*).

It was clearly of this borough, I may add, that Mr. Eyton
was thinking when he wrote that

In one case, as we remember it, a geldability of five hides was
commuted for the service of providing an attendant on the king
in any expedition he might make by sea or land.   Such attendants
were like our modern marines, and were usually called Bus-karles or
Buthsecarles (*Key to Domesday*, p. 71).

But this entry describes a commutation, not of the town's
liability to 'geld' but of the town's liability to 'fyrd' (*expe-
ditio*) or military service.   It ought to be compared with the
entry at Lewes, where 'si rex ad mare custodiendum sine se

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[1] Dr. Stubbs wrongly assigns this to Wilton.   He writes :—' Wilton [sent] one
man for five hides ' (*Const. Hist.* i. 117).

suos mittere voluisset,' the burgesses raised 20 shillings, ' et hos [xx solidos] habebant qui in navibus arma custodiebant' (i. 26). And this unit of five hides takes us back, of course, to the five-hide qualification of the English thegn.

I would even throw out the suggestion that, by a converse application of this principle, just as it was possible to ascertain from the number of hides at which a town was assessed, the quota of military service for which it was liable, so it might be possible from its military service to infer its assessed hidage. Thus the contingent of twenty men due to the *fyrd* from Oxford would represent an assessment of one hundred hides, while that of ten men from Warwick would represent an assessment of fifty, that is the half-hundred.

But remember that this military service had its financial aspect as well, for by a special composition it could be commuted, either for some service in kind, as in the case of Leicester sending four pack-horses instead of a contingent of sailors for the fleet, or for a definite sum of money, that sum, as we have seen, being twenty shillings as a substitute for each man. Then again, if the soldier was actually sent, the locality which sent him had to pay him a certain sum in advance. This, I would suggest, curiously anticipates the ' coat and conduct' money of later times. In the Berkshire entry it is given as four shillings a man, which, it is specially added, is to be kept by him and not given up to the king. But you are doubtless aware how, a few years later, the notorious Flambard unscrupulously availed himself of this very practice as a means of financial extortion by summoning the host to meet at Hastings, and then making them hand over the sums thus provided (at that time ten shillings), when the cunning official disbanded them at once, to make their way home as best they could.

The subject of Domesday finance and assessment is, in-

deed, notwithstanding its great obscurity, of intense and in-
exhaustible interest, not only for itself, but also for the extra-
ordinary amount of light it casts indirectly upon other matters,
and indeed on the whole condition of the country. I have,
however, only time to-day to give you one or two instances.

Let us first look at this remarkable entry, the most in-
structive of its kind in the whole Survey, appended like a
'rider' to the Domesday Commissioners' report of their
inquest at Shrewsbury.

Dicunt angligenæ burgenses de Sciropesberie multum grave sibi
esse quod ipsi reddunt totum geldum sicuti reddebatur T.R.E.
quamvis castellum comitis occupaverit LI masuras, et aliæ L masuræ
sint vastæ, et XLIII francigenæ burgenses teneant masuras geldantes
T.R.E. et abbatiæ quam facit ibi comes dederit ipse XXXIX burgenses
olim similiter cum aliis geldantes. Inter totum sunt CC masuræ VII
minus quæ non geldant (i. 252).

I say that this is the most instructive entry of its kind in
the whole Survey, because it sets fully and clearly before us a
grievance of the native urban populations, consequent on the
events of the Conquest, of which, throughout Domesday, we
catch occasional glimpses, and which it is absolutely necessary
to grasp. This was the exaction of the full amount of the
'geld' assessed upon the town, although the burgesses from
whom it had to be raised had greatly diminished in number.

The causes, in the case of Shrewsbury, assigned for this
diminution are :

(1) Burgages of which the Earl's castle now occupied
the site 51
(2) Burgages lying 'waste' 50
(3) Burgages held by 'Frenchmen' 43
(4) Burgages made over to the Abbey . . . 39
$$\overline{183}$$

Accordingly, say the 'English born' burgesses, there are
193 burgages (*masuræ*) less contributing towards the 'geld'

now (1086) than there were T.R.E. It will be noticed that there is here a discrepancy of ten, beyond the possibility of dispute. This is the more suspicious when we find, as we do, a similar case at Malmesbury :

In burgo Malmesberie habet rex XXVI masuras hospitatas et XXV masuras in quibus etc. . . . Unaquæque harum masurarum reddit X denarios de gablo, hoc est simul XLIII [*sic*] solidos et VI denarios (i. 64 *b*).

For 51 burgages at 10*d.* each would represent a total, not of 43*s.* 6*d.*, but of 42*s.* 6*d.* Here, then, also, the Domesday scribe must have made a careless slip, on the showing of his own figures. Probably he wrote (if the error was clerical) ' XLIII ' for ' XLII.'

So, at Shrewsbury, the error may be either arithmetical or clerical. If the latter, it would be accounted for by the insertion or omission of an ' X.'

Taking now *seriatim* the causes assigned for the diminution, we have first the construction of the castle. This is a cause which, as Domesday shows us, operated in almost every important town.[1] But I would take this occasion of pointing out that it may have continued in operation even after Domesday. Thus we read in the Great Survey that, at Gloucester, ' sedecim domus erant ubi sedet Castellum ' (i. 162) ; but in the fragment of the Evesham Abbey Survey (1097–1101) we read, of the three hundred houses which (T.R.E.) had stood on the King's demesne in Gloucester, ' infra castellum manserunt de hiis CCC XXIV.' That is to say, the sixteen houses which had been removed for the castle had now increased to twenty-four.[2]

The second cause assigned by the burgesses was that

[1] See also Mr. Freeman's note on ' Castles and Destruction in Towns ' (*Norm. Conq.* vol. v).

[2] There would seem to have been also a great increase in the number of ' wasted ' houses, proving that this process was by no means limited to the period immediately succeeding the Conquest.

fifty burgages (of those which had formerly contributed) were now (1086) lying waste ('vastæ'). This term 'waste' is one of the pitfalls of the Survey, though not so much so as 'consuetudo' which appears to cover (in addition to customary rights and laws) every form of service and money-payment that was due by fixed custom. To learn how many causes, in towns alone, could be implied by the term 'waste,' we must turn to such entries as these at Lincoln and Norwich.

LINCOLN.	NORWICH.
Sunt modo Waste cc [mansiones] anglico numero [i. e.] ccxl . . . De predictis Wastis mansionibus, propter castellum destructæ sunt clxvi. Reliquæ lxxiiii Wastatæ sunt, extra metam castelli, non propter oppressionem vicomitum et ministrorum, sed propter infortuniam et paupertatem et ignium exustionem (i. 336).	Isti [burgenses] fugientes et alii remanentes omnino sunt Vastati, partim propter forisfacturas Rogerii comitis, partim propter arsuram, partim propter geltum regis, partim propter Walerannum (ii. 117 b).

Poverty and fire are not among the causes specially mentioned at Shrewsbury, but the above entries will show that they may be included beneath the term 'waste.' Of poverty there is a good instance at Bridport, where 'xx domus sunt ita destitutæ quod qui in eis manent geldum solvere non valent.'[1] We must also remember that the term 'waste' does not necessarily imply destruction (which is occasionally specified by name), but merely a desolate or uninhabited condition.

The third cause assigned by the burgesses is that forty-three 'Frenchmen' (*Francigenæ*) now (1086) held burgages, which T.R.E. had contributed their share towards the geld. That is to say that these said burgages had ceased to contribute their share since they had passed into the hands of the

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[1] See for Mr. Freeman's singular misrepresentation of this case, the *Antiquary* for December 1886.

foreigners. Now I deem this statement to be of great importance as bearing on one of the so-called Laws of William the Conqueror. By this law, all those ' Francigenæ' who had taken up their residence in England *before* the Conquest were ordered to pay ' lot and scot ' with their fellow-burgesses, as they had presumably done in the days of King Edward.[1] I infer from this that those ' Francigenæ' who had settled here *after* the Conquest could claim exemption from such ' lot and scot,' and that those who had settled here under the Confessor were attempting without right to claim it for themselves also, against which attempt this law was directed. The right to this exemption would exactly explain the precise statement of the Shrewsbury burgesses, by whom, apparently, its existence is not disputed, though they complain of its indirect effect upon themselves. We find it in operation again at York, where, among the burgages that ceased to contribute, we read ' CXLV mansiones tenent Francigenæ' (i. 298).[2] And at Hereford we find a careful distinction between the native and the immigrant burgesses : ' anglici burgenses ibi manentes habent suas priores consuetudines, Francigenæ vero burgenses habent per XII denarios omnes forisfacturas suas,' etc. (i. 179)[3] Sometimes the immigrants settled in a separate quarter by themselves. Thus, under the heading 'Franci de Norwic' (ii. 118), we learn that in the new quarter (' in novo burgo ') there were forty-one 'burgenses franci ' resident at the time of the Survey. At Nottingham there was a similar ' novus burgus ' (i. 230). And in this fact recorded in Domesday we have, I

[1] 54. '*De jure Normannorum qui ante adventum Guilielmi cives fuerant Anglicani.* Et omnis Francigena qui tempore Edwardi propinqui nostri fuit in Anglia particeps consuetudinum Anglorum, quod ipsi dicunt an hlote et an scote, persolvat secundum legem Anglorum.'

[2] At Wallingford the description is transferred from the dwellings to their inhabitants :—' sunt XXII masuræ francigenæ' (i. 56).

[3] At Southampton (i. 52), as at Pevensey, the Conquest had led to an influx of population. But here, too, the distinction is maintained :—' Postquam rex W. venit in Angliam sunt hospitati in Hantone LXV francigenæ et XXXI angligenæ.

may observe, the explanation of the existence of 'the two boroughs' which meet us, later in the Nottingham Records, the 'French' and the 'English.'[1] At Shrewsbury also, from which we set out, we find two communities, each with their own customs, down to recent times. Here, then, we have a fresh illustration of the marvellous instructiveness of Domesday.

The fourth cause brought forward by the burgesses is the grant of 39 burgesses by the Earl to his Abbey,[2] they having formerly paid their share towards the *geld* ('olim similiter cum aliis geldantes'). This entry is of value as illustrating a grievance, a subject of contention between ecclesiastics and burgesses, of which there are in Domesday not a few traces, and which—as, for instance, at Leicester and Exeter—proved for long afterwards a fruitful source of strife. This was the diversion of 'the king's geld' into the pockets of ecclesiastical persons, who continued to levy the impost on their tenants, but pleaded their exemption from liability to geld in justification of their retaining the money for themselves instead of handing it over. The ideal at which the Church aimed is well set forth by such a passage as this : ' Hujus Sancti terræ nunquam reddiderunt geldum nisi ipsi æcclesiæ' (i. 121). When the king's geld was thus diverted, it was said to go into ' the abbot's pouch '—' in marsupium Abbatis ' is the actual term employed in the Burton Cartulary—and the fact that it was then withdrawn from the total proceeds of what we might term the rate raised by the burgesses, obviously increased the burden of the remaining portion of the community. Hence such a provision as that in the charter of Henry II., early in his reign, to Nottingham : ' Et quicunque in burgo manserit, cujuscunque

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[1] Each of them electing one of the bailiffs, because their customs were different (' pro diversitate consuetudinum in eisdem burgis habitarum ').

[2] He had paid over twelve pounds' worth (it would have been described later on as 12 ' librates ') of burgesses and mills :—' Tantum de suis burgensibus et molinis quod XII libras reddit monachis ' (i. 252 b).

feodi sit, reddere debet simul cum burgensibus taillagia et defectus burgi adimplere.' Hence, too, such struggles as that at Leicester, where it was not till 1281 that the burgesses gained their point, that the Abbot's tenants should 'scot' with them,[1] or at Exeter, where the Bishop and the Mayor were still wrangling in the fifteenth century over the episcopal fee of St. Stephen's, Sydwell.[2] Hence also the jealous care with which the fact was entered in Domesday when the tenants of the Church fee 'scotted' with the citizens, and did not pay their 'geld' to their ecclesiastical lord. Thus at Chester, out of fifty hides at which the city is assessed, the Bishop's fee was liable for two and a half hides—that is, one-twentieth of the whole amount—and, it is carefully added in in Domesday, 'hæ [hidæ] geldabant cum civitate' (i. 263). So also, at Shrewsbury itself, we read :

> Episcopus de Cestre habuit in Sciropesberie xvi masuras, et totidem burgenses *geldant cum aliis burgensibus.* Modo sunt wastæ ex eis x masuræ (i. 252).

It is most interesting to find from the description of the city, that this estate of the Bishop was assessed at one hide out of the hundred hides at which the whole city was assessed. Five other ecclesiastical and one lay fee, were also responsible for 8¾ hides between them.[3] We have probably another case in point, in the Bishop's fee at Colchester, of which the constituent parts are described as 'non reddentes consuetudinem *preter scotum* nisi episcopo' (ii. 11), where (assuming that in this district 'scotum' was occasionally used for 'geld,')[4] it was, we see, specially reserved that the Bishop's

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[1] Thompson's *Municipal Antiquities*, p. 68.

[2] *Shillingford's Letters.* Camden Society.

[3] St. Alcmund's fee contained 21 burgesses. It was assessed at '11 hidas de c hidis quæ computantur in geldo civitatis' (i. 253).

[4] So, at Ipswich there were 'waste' houses, 'quæ T. R. E. *scottabant* ad geltum regis.' Here we have another instance of the perplexing variety in Domesday phraseology.

tenants should 'scot' with the burgesses. Perhaps the most striking instance is to be found at Lincoln, where the Bishop's fee ('maneriolum,') comprised, *inter alia*, three 'mansiones,' on one of which he could retain the 'geld,' while the other two had to pay over theirs to the common fund of the citizens, and two churches with 78 'mansiones' all of which had similarly to pay their 'geld' not to him but to the citizens.'[1]

I have been thus particular in dealing with this entry because the point is one which has been little, if at all, noticed. It has now been shown how this grievance arose in the number of geld-paying burgesses diminishing in the troubles of the Conquest while the quota of Danegeld exacted remained the same in each case. Thus the impost in many cases fell with crushing weight, especially where, as at Chester, the assessment was abnormally high. Thus it was, also, that, as we learn from Domesday, the English burgesses anxiously protested against any reduction of their rateable area. At Colchester, for instance :

Burgenses calumpniantur v hidas de Lexsendena ad consuetudinem et scotum civitatis (ii. 104).

That is to say, they claimed that this land ought to contribute towards their quota on its assessment of five hides, or, in other words, that its holders should ' scot and lot ' with them. It is strange to see how completely Mr. Freeman has misunderstood this instructive entry, which he imagined to imply a claim to 'common lands.'[2] We seem to have a similar case at Chester, where the Survey records the verdict of the shiremoot that certain land ' semper fuit in consuetudine regis et comitis sicut [terra] aliorum burgensium ' (i. 262 *b*). At

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[1] 'Remigius episcopus habet I maneriolum . . . in civitate Lincoliæ cum saca et soca et cum Thol et Theim super III mansiones similiter et super II æcclesias et super LXXVIII mansiones similiter *præter geldum regis quod dant cum burgensibus* . . . De tribus superioribus mansionibus I quieta ab omnibus rebus [est], *duo vero sunt in geldo cum burgensibus* ' (i. 336).

[2] *Arch. Journ.* xxxiv. 68.

Malmesbury we find them placing it on record that the abbot's
nine tenants 'foris burgum . . . . geldant cum burgensibus'
(i. 64 *b*.) At York, they record of the surrounding lands, that
'in geldo civitatis sunt quater XX et IIII carucatæ terræ, et
unaquæque geldabat quantum una domus civitatis ' (i. 298),
and at Lincoln, that Torksey and Hardwick were between
them responsible for one-fifth of the 'geld' at which the
city was assessed. Moreover, special complaint is made of
several landowners by name, including an earl, a countess, a
bishop, and an abbot, who have not contributed towards the
' geld,' as it was their duty to do.[1] Here again we have the
new-comers, especially the more potent among them, en-
deavouring to evade their distasteful liabilities.

The grievance which I have thus lengthily discussed
illustrates the persistence in this matter of finance of the great
Anglo-Saxon principle of *collective liability*.[2] For we must
carefully distinguish between these payments for which the
community was responsible as a whole, and those for which
each individual was responsible for himself, and for himself
alone. In the matter of the ' geld,' the liability was necessarily
collective because the assessment was upon the borough as a
whole, not on individual burgesses. In this 'collective
liability' to the treasury we have the explanation of the
remarkable passage in the ' Historia Fundationis ' of St. John's,
Colchester, relating to the reign of William Rufus, that:

Terras damnatorum. . . . dum nemo coleret, exigebantur tamen
plenaliter fiscalia, et hac de causa populus valde gravabatur. Has
ergo terras Eudo sibi vindicavit, ut *pro his* fisco satisfaceret et
populum *eatenus* alleviaret. (*Monasticon.*)

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[1] ' Hi subscripti non dederunt geldum regis sicut debuissent ' (i. 336).

[2] It is just possible that in this same principle we may have the clue to the
power of enforcing tenants to keep up their houses, and prevent their becoming
ruinous, of which power we have distinct evidence in much later times (cf. *Anti-
quary*, xii. 201, 278). The original ground of intervention would be the increased
liability of the other residents if such houses became ruinous (' vastæ '). This
suggestion has I believe never been made.

Here we have the fiscal result of land falling out of cultivation or, as Domesday would express it, becoming 'waste,' nor could anything better illustrate the grievance of the Shrewsbury burgesses. But so hopelessly has Mr. Freeman misunderstood this passage,[1] that in order to explain his own explanation, he has unluckily attempted to rationalise the story, and, in so doing, has plunged into deeper trouble than before, making in all, as I have elsewhere shown, some half a dozen separate mistakes.[2]

It may perhaps assist towards a clearer comprehension of this really important subject if we take an instance from our own days. This very year there has been a hot agitation in the city parish of St. Botolph Without on the subject of the tithe-rate raised to provide the fixed sum annually due to the tithe-owner. The complaint of the parishioners as reported in the daily papers of the date[3] curiously resembles that of the English burgesses of Shrewsbury just eight centuries before.

Ratepayers complain very strongly that . . . owing to depression of trade many houses are vacant, and others have been cleared away for railway extension, with the result that the residents who remain find the demands made upon them to make Mr. ——'s 6,500*l.* grow heavier and heavier.

And as the men of Shrewsbury looked to the Conqueror for special intervention in their case, so did these parishioners ask for it in theirs, by special petition to the Prime Minister. The railway station here plays the same part as the Earl's castle in the days of the Conqueror, in involving the clearing away of the houses. Some houses are empty ; of others the inhabitants are poor. In short, as Domesday would put it the district is largely 'vastata.' In another case, as I remember it, a complaint was made, not long ago, that a number of

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[1] *William Rufus*, pp. 464-5.   [2] *Antiquary*, vi. 98-9.
[3] 5 November 1886.

small houses were burnt down or damaged in a destructive ◦fire. The inhabitants, thus 'vastati,' pleaded for a remission of the poor-rate, but it was found, I believe, impossible to make any remission. The 'struggle' to pay, in these cases, and the complaints of ruinous exaction enables us more clearly to understand such expressions as that some of the Norwich burgesses were 'vastati . . . propter geltum regis,' or the earlier moan of the Church of Worcester against that 'maximum et fere importabile tributum' [1] exacted by Swegen, when they had to sell almost all that they had to meet the demands of the tax-collectors. Indeed, our thoughts are carried further back still, back to that 'tributum' of the Roman Empire, which, lying on its subject populations with a crushing and a grinding weight, reduced them to slavery or maddened them to revolt.

But to return to the 'geld.' After all, there is something fearfully eloquent in these entries of 'waste,' of devastation, these entries in which the great and terrible Survey bears witness to the doings of its own maker. I am not speaking now of the ravages of war, or of the infinitely worse ravages of cold-blooded and merciless vengeance. I am thinking of such glimpses of devastation under a rule of law and order as we obtain from such typical entries as these:—'waste,' on account of the king's castle ; 'waste,' on account of the king's forest ; 'waste,' on account of the king's taxes. Far be it from me to malign the memory of one of the great rulers of men ; but the Conqueror was, in very truth, a man of blood and iron. And I think that in the lurid light which these entries cast on his career, we should be able to make some just allowance for the feelings of our English forefathers when

[1] Compare Morant's description (1748) of the 'very great distress' in a poor parish where the poor rate had become 'extremely, nay almost intolerably, chargeable,' so much so that in 1694 the landowners were paying in rates 'the full value of their rents.'

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they saw in this dreaded saviour of society as it were a second Attila sent in vengeance for their sins.

There is yet one point to be dealt with before we can leave the subject of this paper. We have discussed the *geld* of Domesday ; we have yet to discuss its *gafol.*

Now there is one point of such vital importance, that until we have once firmly grasped it, it is useless to approach Domesday finance. I refer to the fundamental and cardinal distinction between the services and payments due to the lord, and the services or payments due to the king—the seigneurial dues and the crown dues. A moment's thought will show you that this distinction is self-evident. Yet our greatest authorities have been led astray by the neglect of this simple point. No one, for instance, can read Mr. Eyton's 'Key to Domesday' without perceiving that in the case of Dorset he persistently and invariably confuses throughout the tax paid to the king *qua* king, and the rent paid to the king *qua* lord. It is specially in the towns that this point is of importance. Broadly speaking, the state of things which meets us in the Survey is this. The king has rights and claims, as king, over the entire town. But, in addition to this, he has rights and claims over a special portion, generally by far the larger portion, of the town, as lord. That special portion is styled his 'dominium.' Thus, at Wareham, out of 285 houses T.R.E., the Survey describes 143 as 'in dominio regis,' while 62 were in the fee of the Abbot of Fontanell ('Sanctus Wandregisilus'), and 80 in those of other holders ('alii barones'). And at Shaftesbury, out of its 257 houses T.R.E., 104 were 'in dominio regis,' while in that of the Abbess of Shaftesbury were 153. Within this 'dominium' the holders of burgages, sometimes styled the king's burgesses, would pay their burgage-rents to him as lord, just as the holders of burgages outside that 'dominium' would pay their

burgage-rents to their own respective lords. You will see then, that to treat these burgage-rents, as Mr. Eyton does, as a 'tax,' is to miss the whole point of borough finance in Domesday.

Mr. Eyton, in his introductory essay, makes another singular error. 'The individual burgess,' he writes, 'when holding immediately, was responsible to the sheriff or other fiscal officer for his quota of rent, or taxes, or local burdens. But in other cases, where the tenure of burgages was not immediate, the party responsible to the baron would be that earl, or bishop, or abbot, or baron, whose tenants the burgesses happened to be, and who received the respective burgage-rents' (p. 51). That is to say these holders had to pay over to the crown the burgage-rents which they received from their tenants, instead of keeping them for themselves. How erroneous is that view is shown by Mr. Eyton's own words on p. 72, where he admits the 'burgage-rents' received by the Abbess of Shaftesbury formed a main factor of the value of her Shaftesbury estate.

Now the term for rents so paid, whether to a private lord, or to the king himself as lord, was *gablum* or *landgablum*. Thus our greatest authority of all—I mean, of course, Dr. Stubbs—is clearly in error, when he assigns to *gablum*, in the glossary to his 'Select Charters,' the meaning, 'a tax.'

Gablum, the equivalent of the Anglo-Saxon *gafol*, plays an important part in Mr. Seebohm's learned theories. He traces it from its origin in the German *gaben* ('to give') through its sense of 'tribute,' to that of 'payments in money or kind, or work rendered by way of *rent*' (p. 78). He shows that as early as the seventh century it is to be found in the 'Laws of Ine,' as designating 'the customary tribute' due from the tenant to the lord (pp. 142-3), and that in the *Rectitudines* of the tenth (?) century its meaning is most clearly defined (pp. 132, 140). Its development I conceive to have been as follows. From being a general term, denoting tribute or rent, in money, kind, or labour, it acquired by composition

a more exact denotation. Thus we learn from the *Rectitu-dines* that the ' gebur ' paid his *gafol* (or *gablum*) (1) in money. This was known as ' gafol-*pence* ' (or *pennies*). (2) In kind ; as *honey*-gafol, *meat*-gafol, *ale*-gafol, and gafol-*barley*, to which we may add from the Survey itself (i. 27, 28) gafol-*swine*, the ' porci de gablo ' of Sussex, being the annual ' tribute' of swine paid by the swineherd to his lord. (3) In labour, as gafol-*yrth* (ploughing), gafol-*wood* (chopping), gafol-*mowing*, gafol-*fencing*, and gavel-*rep*, which last term I have noted in the Register (still in MS.) of St. John's Abbey, Colchester. In the ordinary course of social development there was a tendency, even from early times, to commute these two latter kinds of *gafol* for money payments. Hence the term *gablum* (or *landgablum*) became practically equivalent to a quitrent paid *in money alone*. Thus in Domesday we read of the king's manor of Cheddar, after the usual description of the ploughlands, ' VII gablatores reddunt XVII solidos ' (i. 87) : that is to say that there were seven tenants who held their lands by payment of money-rent (*gablum*) amounting to seventeen shillings.[1] Again, passing from Somerset to Kent, we find the ' gablum rusticorum ' mentioned (i. 12 *b*) among the sources of revenue in a manor belonging to St. Peter's of Ghent. These expressions should be compared with the entry in the *Liber Niger* of Peterborough (*circ.* 1125) that, at Collingham, 20 villeins ' reddunt *de gabulo* per annum IIII libras.' Let us now turn to another record, the Kentish Domesday of the Church of Canterbury. I would observe in doing so that it is most desirable that the date of this as well as of the other earliest Surveys should be ascertained as exactly as possible. In this case it is stated by the learned author of the Report on the Chapter Records (8th Report Hist. MSS. i. 315 *b*), that this Survey was ' compiled, apparently, immedi-

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[1] See also my notes in the *Historical Review* on Mr. Vinogradaff's distinction between ' gafol ' and ' mol.'

ately after the *Domesday Domini Regis*,' and again that ' internal
evidence indicates that the compilation was made near the be-
ginning of the twelfth century.' It will be seen that there is,
perhaps, if I may venture to say so, a slight discrepancy be-
tween these two statements. Now the valuable feature of this
Survey, though it is not mentioned in the Report, appears to
me to be this. In the case of Edesham, which is given as a
specimen, the Exchequer Domesday merely states that the
manor renders (' reddit ') 46*l.* 16*s.* 4*d.* (for the 26*s.* 4*d.* of the
Report is an error), whereas the Kentish Domesday gives us
the two constituents of this total, stating that it is worth
(' valet ') 30*l.* ' de firma,' and ' de gablo reddit ' 16*l.* 16*s.* 4*d.* I
need scarcely point out how important a bearing this passage
has on the vexed question of what are known as Domesday
' values.' To understand it aright we must bear in mind that it
was the favourite practice of monastic bodies to let out their
manors ' ad firmam ' to a ' firmarius,' who paid them a fixed
annual sum. But we further learn from the Burton Cartulary,
which I select on account of its early date, that it was not
unusual to except certain sources of profit from the *firma*,
and to receive their income separately. Thus Eadric held Bran-
stone ' ad firmam ' from the Abbot of Burton at 5*l.* a year,
' preter lucum et haias et preter terram quæ fuit Ormi et preter
terram quæ fuit Tracemusche, quæ omnia retinuit Abbas in
manu sua ' (p. 19). So too Godric and Wulfric held Leigh ' ad
firmam ' at 5*l.* a year, but ' præter hæc, extra firmam eorum '
was a tenant who paid his rent separately. This may serve
to illustrate a point insufficiently, if at all, understood—namely,
that the *firma* need by no means, in towns, have always in-
cluded every source of revenue. For instance, at Colchester
we are told of one payment ' hoc totum jacet ad firmam regis,'
of a second ' hoc pertinent [*sic*] ad firmam regis,' but of a
third ' hoc *non* est ad firmam ' (ii. 107). That is to say, as I
understand, that the first two were, but the third was not,

among those sources of revenue which were compounded for in the *firma*. It may perhaps be mentioned, while on the subject, that the *firma* of Colchester included the profits arising from the *monetarii* and from the King's Wood. When there ceased to be *monetarii* and when the king took his wood into his own hands, the *firma* was reduced *pro rata* for each. Thus the *firma burgi* may be looked on as, to some extent, the aggregate of several *firmæ*.

But now let us approach the towns in Domesday in the light of these conclusions, bearing in mind my explanation of *gablum* as the rent arising from the tenants of burgages within the king's *dominium*. In Southampton we have a good case in point :

> In Burgo de Hantune habet rex in dominio quater xx homines
> iiii minus qui reddunt vii libras de gablo terre et totidem reddi-
> derunt T.R.E. Horum xxvii reddunt quisque viii denarios. Duo
> vero xii denarios, et alii l numero reddunt quisque vi denarios (i. 52).

That is to say :

> In the borough of Southampton the king has in his *dominium* 76
> men who pay him seven pounds in landgable, and paid the same
> amount T.R.E. 27 of these pay 8*d.* each, two pay 12*d.*, and fifty
> others 6*d.* each.

How Domesday works out its sum I will not attempt to say. I am only here concerned with its language. Again, take Pevensey as a typical case :—

> In Burgo Pevenesel T.R.E. fuerunt xxiiii burgenses in dominio
> regis et reddebant de gablo xiiii solidos et vi denarios. De theloneo
> xx solidos. De portu xxxv solidos. De pastura vii solidos et iii
> denarios (i. 20 *b*).

Here we have a passage of singular clearness. At Pevensey the Confessor had in his *dominium* 24 burgesses paying him 14*s.* 6*d.* a year in *gafol*, that is in burgage rents (being an average of 7¼*d.* apiece), 20*s.* for market dues, 35*s.* for harbour

dues, and 7s. 3d. for their use of the so-called common pasture, for which, as at Oxford, we must not forget, they had to pay their lord. The other payments were, I take it, evidently of the nature, severally, of *firmæ*, as the port dues and market dues must have varied from year to year. Notice that besides these 24 burgesses *in dominio*, there were 28 others belonging to four other lords. Now the special interest of this case is that the Conqueror had transferred to his half-brother, the Count of Mortaine, all the rights which he held, as lord, in Pevensey, that is, the *dominium* with its appendages. Thus, the lord of that *dominium* was now a subject. But the profits of that *dominium* having been received by the Confessor, not as king but as lord, the same seigneurial dues would now be received by his successor. Accordingly we find the Count in receipt of the *gablum* (or burgage-rent) in that *dominium*. And so rapidly had Pevensey increased, in consequence, I presume, of the increased traffic with Normandy consequent on the Conquest, and of the Count's residence at the castle, that the 25 burgesses in the *dominium* of the Confessor (27 when it was granted to the Count) were now represented by 60, paying not 14s. 6d., but 39s. ' de gablo.' Notice that this represents an average burgage rent of 7¾d. as against 7¼d. under the Confessor, a curiously close approximation, as it also is to the amount at Southampton. The *Theloneum*, or market dues, had increased in proportion—namely, from 35s. to 4l., the amount in each case representing, I take it, a composition. Nor was this all, for the holders of burgages outside the *dominium* had increased from 28 to 51, the list being headed by the eight burgages which paid their rents (averaging 8¼d. each) to the monks of Mortaine. Perhaps the most instructive passage on this subject in Domesday is that which describes the 'gablum' of the various estates in Wallingford (i. 56–7). On King Edward's 'dominium' there stood 276 'hagæ reddentes XI libras de geldo,' an average of 9½d.

The Bishop held twenty-seven, paying him twenty-five shillings, an average of 11*d.* In this case all the rents are recorded with exceptional care, some of the houses being described as 'hagæ' and some as 'masuræ.'

I have been thus particular in dealing with these two cases, because they enable us to understand the language in which Domesday refers to other towns, of which the account is not so full. Thus when we read that T.R.E. Lewes 'reddebat VI libras et IIII solidos et III obolos de gablo et de theloneo' (i. 26), or that T.R.E. 'reddebat Oxeneford pro theloneo et gablo et aliis omnibus consuetudinibus per annum,' etc. etc. (i. 154), we recognise the 'theloneum' and the 'gablum' of Pevensey, and know that the latter was the amount of the burgage rents from the *dominium.* Again, turn to Huntingdon (i. 203). 'De toto hoc burgo exibat T.R.E. de landgablo X libræ.' This, as in the other cases, refers exclusively to the burgage-rents. Accordingly we read 'De hoc censu remanet nunc super XX mansiones ubi castrum est XVI solidi et VIII denarii.' Referring to the preceding column, we find the same fact alluded to—namely, that these 20 houses had stood on the ground now occupied by the castle, and had paid annually 16*s.* 8*d.* 'ad firmam regis': that is, you will perceive, an average rent of 10*d.* each. But the special importance of the Survey of Huntingdon, as bearing upon borough finance in Domesday, is this: on the one hand, here alone in the Survey, we meet with the expression *firma burgi*; on the other, we can, fortunately, in the case of the borough, speak with absolute certainty not only of the amount of its total payments, but also of each constituent factor. These factors were as follows :

Landgable	£10
Firma Burgi	30
Borough Mill	3
3 Monetarii	2
Total	£45

Now the earl received one third of *each* of these four sources of profit. Thus he took 15*l.*, leaving the king 30*l.* But the point that I want you to observe is that the so-called *firma burgi* is not, as we have always been taught to believe, a composition for the total profits of the town, but only in this case, for *some* of the profits. I have already drawn attention, you may remember, to this important distinction, and I would remind you of that passage in the Kentish Domesday in which we found the *gablum* entered as a payment outside, and independent of, the *firma*, just as we do here at Huntingdon. The account of Leigh, in the Burton Cartulary, with its 'preter hec, extra firmam' should also be compared with this of Huntingdon. The exception of the *gablum* from the *firma burgi* is the more remarkable, because that *firma* has been looked upon as essentially a composition for the *gablum*. Thus Dr. Stubbs describes the *firma burgi* as 'a rent paid to the crown from the borough,' and proceeds to speak of 'the burgage tenants, from whose burgages the rent was originally due, and from which it must, if raised legally, be paid.'[1]

Without taking you through every mention of *gablum* in the Domesday towns, I would point out that at Cambridge, as at Huntingdon, the profit arising from the *landgavel* is estimated separately: 'De consuetudinibus hujus villæ VII libræ per annum et de landgable VII libræ et II oræ et duo denarii.' Here the 7*l.* for the *consuetudines* would doubtless represent a *firma*. Chester, too, I must ask you to glance at. Here we read, among its customs, 'Qui ad terminum quod debebat gablum non reddebat X solidis emendabat.' This by-law, as we might term it, imposing a fine of 10*s.* on him who failed to pay up his *gafol* at the appointed time, should be compared

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[1] Though the *firma burgi* thus at Huntingdon specially excludes that source of revenue from which Dr. Stubbs (*ut supra*) presumes it to have been essentially raised, it seems to be implied by Domesday that the 10*l.* for landgable represented a separate composition (*firma*) for the rents.

with these doggrel lines, preserved in the 'Diary of Abraham de la Pryme,' as recited by the crier at Scarborough, in a formal Corporation procession :

> Whay ! Whay ! Whay ! [1]
> Pay your gavelage, ha !
> Between this and Michaelmas-day,
> Or you'll be fined, I say !

This it will be seen exactly reproduces the principle of the Domesday by-law.

The form 'gavelage' appears to represent a Latin form, *gablagium*. We find it again in the same county, under the barbarous corruption 'gasfleage,' in the customs of New alton, printed among the miscellaneous pieces in Hearne's *Liber Niger* :

It is used and granted that every burgess shall give to the lord one tyme in the year a fee-farm rent for his tenement, the which is called the *gasfleage*. [2]

Returning to Chester, we may notice the fact that from its Domesday *gablum* were duly derived the later forms, 'the gabell rent,' 'the gabul rentes,' and even, by the combination of this pleonasm with a corruption, 'the long-gable rent '— that is, the *landgafol*. [3] It may be known to some of you that under the title 'The true Story of the Leicester Inquests,' [4] I have published a paper on some curious inquests held at Leicester in the thirty-seventh of Henry III., the object of one of which was to determine the origin of the payment to the lord of 'gavel pennies.' So strangely had that origin been already forgotten, that the jurors gravely returned the payment as having originated a century and a half before in a payment from every house of which the gable (*gablus*) faced the High

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[1] Perhaps, originally, 'Oyez, Oyez, Oyez.'
[2] Hearne's *Liber Niger*, p. 803.
[3] *Eighth Report Hist. MSS.* App. I. pp. 340, 358 *b*, 362 *b*.
[4] *Antiquary*, vol. xi.

Street! Though everyone seems to have been imposed upon by this return (which affords an instance of Folk-Etymology as obvious as it is interesting) they have all, you must kindly allow me to add, been fairly outstripped by Mr. Cordy Jeaffreson, who in his glowing Report to the Royal Commission, describes this record as revealing to our gaze a glimpse of 'the eleventh century' in 'a striking picture of the old borough town, with its one main street bordered by *gabled* houses'!

But, keeping to the Survey, observe that at Canterbury the king had possessed, T.R.E., 51 burgesses 'reddentes gablum,' whereas, in 1086, he had only 19 'gablum reddentes.' This, though in such striking contrast to the state of things at Pevensey, was clearly the usual experience. As evidence of this the Gloucestershire fragment, attributed to the close of the eleventh century, will be found of special value. In the time of King Edward, we there read, there were at Gloucester 300 'burgenses in dominio reddentes XVIII libras et X solidos de gablo per annum.' But when this particular Survey was made the 300 *gafol*-paying burgesses had dwindled to 97. We are prepared, it may be added, for this by the Great Survey itself, which also speaks, at Gloucester, of the 'dominica terra regis' and of the 'dominium regis in civitate.' At Winchcombe, which is included in the same Survey, the sixty *gafol*-paying burgesses *in dominio* were only reduced to fifty-two. But here, as at Gloucester, it would seem, as we might expect, to have been precisely the most valuable houses on which the crown had lost its *gablum*. While on the subject, I would observe that this Survey gives us an indication of the relative importance of these two towns, the burgage-rents at Winchcombe averaging 8¼*d.*, while those at Gloucester the capital of the West, averaged no less than 1*s.* 2¾*d.*

Lastly, if we turn to the Winton Domesday, another of these early Surveys, we find it describing itself as due to the

determination of Henry the First 'scire quid rex Edwardus habuit omnibus modis Wintonie *in suo dominio*,' and as being ' Liber de terris regis reddentibus *landgablum*,' etc. etc. Thus here, as at Gloucester and Winchcombe, the *gablum* (or burgage-rent—we might almost term it ground-rent), arising from the houses on the King's *dominium*, is the special subject of inquiry, and here as there, we find that its payment had been widely neglected.

I hope I have now made good my point—namely, that *gablum* was not a tax, but was a payment of the nature of rent, which, in towns, was received by the king as lord from the burgages within his *dominium*. It is a rash thing to differ from Dr. Stubbs, even in the smallest detail, but here, at least, I think we stand on sure ground. Gneist, I may add, is at one with me on the point, for *he* distinctly terms it an error to describe the king's *gafol* as a tax, although it has been so regarded, he observes, by Kemble and others.

POSTSCRIPT.—Since the above was in type, Mr. W. H. Stevenson has written : ' Mr. Round is too hasty in charging Kemble and Dr. Stubbs with being in error in speaking of *gafol* as a tax' (*Historical Review*, ii. 336). A perusal of my case will show, I hope, that his criticism is without warrant.

𝕮𝖍𝖊 𝕻𝖑𝖔𝖚𝖌𝖍𝖑𝖆𝖓𝖉 𝖆𝖓𝖉 𝖙𝖍𝖊 𝕻𝖑𝖔𝖚𝖌𝖍.

BY CANON ISAAC TAYLOR, M.A., LL.D., LITT. D.

GENERAL speculations as to the interpretation of the Domesday record require to be tested over limited areas by those
who possess personal knowledge of the localities. For several
reasons the East Riding of Yorkshire is a district which offers
special advantages for such an inquiry.

The Domesday record is presented in a very simple form.
At the time of the Survey, a great part of the district lay
waste, depopulated by the terrible devastation of the North.
The Danish conquest had previously swept away the ancient
system of hide geldation. The hide, that fertile source of
ambiguity, having disappeared, the record is confined, for the
most part, to the number of ploughlands, of possible and
actual ploughs, and the extent of meadow and of pasture.

Owing to the geological structure of the district, the
ancient areas of arable, of hill pasture, and of marshland are
clearly marked and easily recognisable. Moreover, there were
no extensive woodlands, whose clearance has elsewhere greatly
altered the agricultural conditions and the external aspect of
the country.

In few districts have the primitive features of the country
been so little disturbed by the hand of man. The land has
not been defaced by mining or manufacturing industries ;
with the exception of one seaport, there are no great modern

towns, with encroaching suburbs to transform and disfigure
the neighbouring villages.   The population is sparse and
stationary, the houses are not, as in some counties, dotted here
and there over the land in clearings from the forest, but, as in
the champaign districts of France and Germany, the dwellings
—both cottages and farmhouses—are collected in villages and
hamlets, on the same spots where available springs of water
caused them to be originally fixed.

The general inclosure of the county has only been effected
in comparatively recent times, so that within the memory of
persons now living, it was possible to cross the Riding on
horseback from west to east over the open ground.   In many
instances the uninclosed arable fields remained, in the reign
of George III., as they were in the reign of William the
Bastard, and thus in numerous townships it is possible to
recover the boundaries and extent of the arable, the *pratum*,
and the outlying common pastures, as described by the
Domesday Commissioners.   The survival of these archaic
features greatly facilitates the solution of certain Domesday
problems.   In the East Riding the task of investigating the
significance of the Domesday Survey is thus presented under
the simplest conditions, free from complications arising either
from the character of the record, from geographical difficulties,
or from modern transformations of the features of the country.

We have, in the East Riding, a repetition, on a large scale,
of those favourable conditions which, in the neighbourhood
of Hitchin, enabled Mr. Seebohm to throw such a brilliant light
on the early village communities of England, but with the
important difference that we are dealing with communities,
not of Saxons, but of Danes and Angles.

A fundamental fact which has to be borne in mind is the
former existence of two different systems of agriculture.   The
simpler of the two, and doubtless the most ancient, was the
two-field system, in which the whole arable of the township

lay in two fields or shifts, one field being fallowed every year
and fed over by the cattle of the community, while the other
field was in tillage, half of it being ploughed in winter, and the
other half in Lent.

The other system was the three-field shift, in which the
arable lay in three nearly equal fields, one for fallow, one
for winter tillage, and the third for spring tillage. Each
tenant of the manor had corresponding strips in all three
fields. Thus in two-field manors half of the arable was con-
stantly in tillage, while in three field manors two-thirds was
always tilled.

In the south of England, to which Mr. Seebohm's investi-
gations were confined, the three-field shift seems to have been
nearly universal, and he has consequently overlooked the im-
portant differences arising from the two systems of agriculture.
In Derbyshire the two-field system prevailed, while in the
East Riding of Yorkshire we find both systems were practised,
one in Holderness and the other on the Wolds, and we have
therefore a unique opportunity of discovering how they were
noted in the Domesday record.

The chief object of the present paper is to discover how the
two-field and three-field manors may be recognised in the
Domesday entries, and to show how the distinction affects
the interpretation of the Domesday land measures.

All over the East Riding the six-inch Ordnance Map still
testifies to the former existence and extent of these open
arable fields.[1] Their names are found upon the map, and in
numerous instances they enable us to determine whether the
township was cultivated on the two-field or the three-field shift.

[1] At the end of the last century half or more than half of Huntingdonshire,
Berkshire, and Wilts were in open fields, as were 50,000 acres in Warwickshire,
100 parishes in Oxfordshire, and 89 in Northamptonshire (Nasse, *Agricultural
Communities of the Middle Ages*, p. 6). In 1557 Tusser describes Essex and Suffolk
as almost wholly inclosed, while the common-field system, usually in a three-
field shift, and exceptionally in a two-field shift, prevailed in Leicestershire, Nor-
folk, and Cambridgeshire. *Ib.* p. 84.

These 'fields' usually take their name from some local peculiarity—from the nature of the soil, as Clay Field, Sand Field, or Gravel Field; from some building, as Mill Field or Church Field ; from distance, as Far Field, Near Field, or Out Field ; or more commonly from their position in relation to the village, as East Field, North Field, or Town End Field.

In eighteen of the two-field townships, Lisset, Beeford, Ulrome, Dringhoe, Lund, Aldbrough, East Newton, Preston, Coniston, Danthorpe, Elsternwick, Burton Pidsea, Laxton, Owthorne, Hollym, Holmpton, Patrington, and Kilnsea, the two fields are called North Field and South Field. In sixteen townships, Foston, Riston, Sigglesthorne, Everthorpe, Heslerton, Easington, Skeffling, Out Newton Weeton, Welwick, Ryhill, Roos, Tunstall, Sproatley, South Coates, and Arnold, they are called East Field and West Field. We find High Field and Low Field at Bessingby and Scagglethorpe ; and Gravel Field and Clay Field at Catwick.

Among the three-field townships we have the names East Field, West Field, and North Field at Fridaythorpe, Hutton-Cranswick, Riccall, and Hotham ; we have East Field, West Field, and South Field at Wawne ; we have North Field, South Field, and West Field at Bishop Wilton, Garton-on-the-Wolds, Skidby, and Swanland ; we have East Field, West Field, and Middle Field at Elmswell, Driffield, and Burton Agnes ; North Field, South Field, and Middle Field at Mappleton, and Holme-on-Spalding-Moor. At Wharram-le-Street we find North Field, South Field, and Town End Field ; we have West Field, North Field, and Low Field at Willerby and Hessle. At Millington the names are In Field, Near Out Field, and Far Out Field ; at Tibthorpe, In Field, High Field, and Low Field ; at Kirkburn, In Field, Out Field, and High Field ; at Wilberfoss, Mill Field, Town End Field, and Far Field ; at Shipton, Clay Field, Sand Field, and South Field ; at Brandsburton, Sand Field, West Field, and East

Field ; and at Hemingbrough, Mill Field, Chapel Field, and North Field.

These names (and scores of others could be adduced) prove that the ancient common-field system, either in the two-field or the three-field shift, survived in the East Riding down to comparatively recent times. In Burton Agnes, Haisthorpe, and Rowlston it was in force only forty years ago. At Totternhoe near Dunstable it existed last year, being put an end to by the owner of the soil mainly on account of the disputes to which it gave rise among the tenants. The existence of the common-field system of agriculture is recorded in the Preambles to many of the Inclosure Acts passed during the reign of George III. At Brandsburton the agreement between the landowners, made in 1632, recites that in the common arable fields of Brandsburton 'every man's land lay intermixed in several places and quantitys together,' and that 'one of the said fields used to be sowed one year, and the other field another year.' [1] In 1766, at Elsternwick, the oxgangs contained 12 acres in each arable field, and 4 acres of meadow ground in the Ings. At Keyingham each oxgang consisted of 10 acres in each arable field, 4 acres in the Ings, 4 acres in each Carr, and 3 roods being balks and marstalls in the fields. At Etton an ancient document recites that 'each oxgang contains 12 acres always upon plough. The whole oxgang lies in three different fields, one of which is always fallowed, the others always in crop.'

Mr. Seebohm has shown that the open arable field system has come down to us from the remotest times of English settlement. It must therefore have existed at the time of the Domesday Survey, and it would be strange if we could find no traces of it in that record.

I shall now endeavour to show that the open arable field system of tillage is the master key for the interpretation of Domesday, that Domesday assumes its existence throughout,

[1] Poulson's *Holderness*, vol. i. p. 270.

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and that some of the chief difficulties that have beset Domes-
day commentators have arisen from ignorance of this funda-
mental fact of ancient land tenure, and of the course of agri-
culture which resulted from it. When this is once recognised,
as it has been by Mr. Seebohm and Mr. Pell, some of the
greatest obscurities of the Domesday record disappear as if
by magic.

Domesday does not expressly refer to the open field
system.   If it were universal, or nearly so, it would naturally
be tacitly assumed in the record. We ought to be able to
detect it, and to distinguish, by some simple test, between
two-field and three-field manors, as the number of fields
formed an obvious distinction. Now the Ordnance Map, as
we have seen, shows that, with certain exceptions hereafter to
be explained, a large number of the East Riding townships,
before the Inclosure Acts, lay in open arable fields, either two
or three in number. The same arrangement of the arable
must have existed at the time of the Norman Conquest.
Hence the first question to be solved is this: does the East
Riding Domesday present any corresponding indications as
to whether in these townships the land lay in a two-field or a
three-field shift ?

In the Yorkshire Domesday the carucate or ploughland
takes the place of the hide of the Southern counties.

The entries in an overwhelming number of cases follow
one almost invariable type.   We are told that in such a place
' there are so many ploughlands to be taxed,' and ' there is
land to so many ploughs ' ; or, ' there may be so many ploughs.'
For instance :

*In Brunebi ad geldum quatuor carucatæ. Terra ad quatuor
carucas.*

*In Lont ad geldum duodecim carucatæ, et sex carucæ
possunt esse.*

Our first business is to determine the significance of such

entries. Sir Henry Ellis is plainly wrong in his interpretation. He says ('General Introduction to Domesday,' p. xlix) : 'we have frequent intimations that the land could maintain more ploughs—that is, was capable of improvement.' In Yorkshire, he continues, 'entries of this description are extremely numerous.' These entries, he adds, 'are perhaps to be ascribed to the slow recovery of Yorkshire from devastation.'

The statement that in a certain manor, Lund for instance, 'there are twelve ploughlands to be taxed,' and 'there may be six ploughs,' or that 'there is land to six ploughs,' does not mean, as Sir H. Ellis supposes, that there were twelve plough-lands under plough, and that six more might be brought into cultivation, but it means that six ploughs were sufficient to till the twelve ploughlands.

This is proved by the occasional alternative use of other phrases. For instance :

Sex carucatæ, quas possunt arare tres carucæ.

Inter omnes sunt ad geldum lx carucatæ in quibus possunt esse xxxv carucæ.

Inter omnes xiiii carucatæ, et viii carucæ possunt arare.

Sunt v carucatæ terræ ad geldum, et totidem ad arandum.

These equivalent expressions prove that the number of *carucatæ* is the fiscal area, while the number of *carucæ* gives the tillage area.

If any further disproof of Sir H. Ellis's theory be required, it is found in the significant fact that in a large number of cases the number of geldable carucates bears A FIXED PRO-PORTION to the number of ploughs.

In Holderness, as a rule, the number of ploughs is equal to the number of carucates, while on the Wolds, as a rule, the number of ploughs is half the number of carucates.

I will first take a few instances of manors in which the number of carucates is equal to the number of ploughs. They are not picked cases, but follow one another consecutively on

p. liii. of the Facsimile of the Yorkshire Domesday. They are
all manors which were held by Drogo, in Holderness.

						Number of Carucates	Number of Ploughs
Keyingham .	.	.	.	.	.	8	8
Ottringham .	.	.	.	.	.	4	4
Newsome .	.	.	.	.	.	5¼	5
Rimswell .	.	.	.	.	.	5¼	5
Waxham .	.	.	.	.	.	2	2
Roammere .	.	.	.	.	.	1½	1¼
Holmpton .	.	.	.	.	.	8	8
Newton .	.	.	.	.	.	5	6
Rise .	.	.	.	.	.	2	2
Thorpe .	.	.	.	.	.	3	3
Lissett .	.	.	.	.	.	3	3
Beeford .	.	.	.	.	.	12	12
Soke of Beeford .	.	.	.	.	12¼	12¼
Frodingham .	.	.	.	.	12	12
Barmston .	.	.	.	.	.	8	8
Totals	.	.	.	.	.	91¼	91¾

I will next take, from p. vii., some consecutive entries
relating to the Wolds. Here the number of carucates is
double the number of ploughs.

						Number of Carucates	Number of Ploughs
Rillington .	.	.	.	.	.	2	1
Mennythorpe .	.	.	.	.	2	1
Eddlethorpe .	.	.	.	.	4	2
Burythorpe .	.	.	.	.	.	2	1
Kirby Underdale .	.	.	.	.	4¼	2
Uncleby .	.	.	.	.	.	2	1
Painsthorpe .	.	.	.	.	.	4	2
North Grimston .	.	.	.	.	4	2
Wharram Percy .	.	.	.	.	8	4
Fridaythorpe .	.	.	.	.	1	⅓
Totals	.	.	.	.	.	33¼	16½

Thus the number of carucates is either equal to the number
of ploughs, or else double.

In the East Riding, in manors where the number of
ploughs and carucates is stated, there are eighty-one cases,
chiefly in Holderness, where the number of ploughs is exactly
equal to the number of carucates, and there are 128 cases,

chiefly in the Wolds, where the number of carucates is exactly double the number of ploughs.

In addition to these 209 manors in which the rule is exactly observed, there are also 145 townships in which, as in several of the foregoing cases, the difference is so trifling that the rule practically holds good. These are mostly where several berewicks are lumped together; so that we are unable to ascertain the exact proportion of ploughlands to ploughs in each.

I will first give some instances where the carucates are nearly equal in number to the ploughs, and then some where they are nearly double.

Cases of Approximate Equality.

	Number of Carucates	Number of Ploughs	Divergence from the rule
In the Soke of Mappleton, 11 berewicks .	41¾	42	+ ¼
,, Aldbrough, 14 berewicks .	41	40	− 1
,, Hornsea, 5 berewicks .	11½	12	+ ½
,, Burstwick, 8 berewicks .	20⅝	20	− ⅝
,, Patrington, 4 berewicks .	35¾	35	− ¾
Totals	150⅝	149	− 1⅝

Cases where they are nearly double.

	Number of Carucates	Number of Ploughs	Divergence from the rule
In the Soke of Bridlington, 14 berewicks .	58½	30	+ ¾
,, Langton and 5 berewicks .	39	20	+ ½
,, Welton and 4 berewicks .	39	20	+ ½
,, Warter and 3 berewicks .	29	15	+ ½
,, Driffield and 4 berewicks .	23	12	+ ½
,, Kelk and 2 berewicks .	13	7	+ ½
Totals	201½	104	+ 3½

In these lists, which are by no means exhaustive, but might easily be enlarged, there are eighty townships in which the want of exact conformity to the rule is so small as to be almost inappreciable, and even this trifling irregularity would probably in most cases disappear if the number of ploughs

and ploughlands were given separately, instead of collectively. Altogether, there are upwards of 350 manors and sokes in the East Riding in which the number of carucates is either equal or very nearly equal, to the number of ploughs, or else double or very nearly double. The inquiry might be extended to Lincolnshire, Derbyshire, and the other Ridings of Yorkshire, with results nearly as striking.

It is quite incredible that these fixed proportions of ploughs to carucates can be accidental. There must be a cause to explain the result.

Mr. Eyton's theory that some persons had their lands favourably carucated—that is, that they were taxed upon a number of carucates less than those actually in cultivation—affords no sufficient explanation. As far as the East Riding goes, the number of geldable carucates, when it is not equal to the number of ploughs, is not less than the number of ploughs, as the theory would require, but double or nearly double. Nor will the theory hold that the geldable carucates referred to the possible arable, and the ploughs to the arable actually under cultivation; or the converse theory of Sir H. Ellis, that the number of carucates refers to the number under plough, while the number of ploughs represents the land that might be brought into cultivation. That in 150 manors in the East Riding precisely two-thirds of the possible arable was tilled, and precisely one-third had gone out of cultivation owing to William's devastation of the North, is quite incredible. Did William order every third plough to be destroyed, and every third villan to be slain?

Even this extravagant supposition is excluded by the fact that these returns as to the relative numbers of ploughs and carucates usually refer to the state of things in the time of King Edward, and not at the time of the Survey. Moreover, the number of ploughs actually on the land is frequently stated, and usually differs very materially from the number

of possible ploughs. For instance at Ferriby we learn that
'there were ten carucates *ad geldum*, and land to five ploughs.
There are now three ploughs.'

Besides, over extensive areas, the proportions are curiously
uniform. On the Wolds, in a large number of cases, the
number of carucates is double, or nearly double, the number of
ploughs, while in Holderness, with a few exceptions, the rule
of equality prevails.

Plainly, we must seek for an explanation of an entirely
different nature, we must try and discover some general law
which will apply universally.

Is it difference of soil ? It is true that Holderness is a
level plain overspread with glacial drift, the subsoil being
heavy clay, while the Wolds are rolling hills of chalk, with a
thin covering of light soil. But we can hardly assume that
the clay of Holderness was exactly twice as difficult to till as
the chalk of the Wolds. Even if this were the case there are
curious exceptions which dispose of this hypothesis. There
are Wold manors where the Holderness rule prevails, and
Holderness manors where the Wold rule prevails. For an
example we may take the manors belonging to Odo Ar-
balistarius, which are given on p. lxiv. of the Facsimile.
None of them are in Holderness, and they are mostly on the
Wolds, and yet the number of carucates is exactly equal to
the number of ploughs, as in Holderness.   We have

		Number of Carucates	Number of Ploughs
Bugthorpe .	. . . . .	4	4
Burythorpe .	. . . . .	2	2
Youlthorpe .	. . . . .	4	4
Fridaythorpe	. . . . .	18	18
Raisthorpe .	. . . . .	2	2
Swaythorpe.	. . . . .	9	9
Skirpenbeck	. . . . .	5¾	5¾
Grimston .	. . . . .	4½	4½
Kilham .	. . . . .	7	7
	Totals . .	56¼	56¼

Now in some of these townships (viz. Fridaythorpe, North Grimston, and Burythorpe) I have already cited manors which belonged, not to Odo Arbalistarius, but to the king, in which the other rule prevails, the number of carucates being double the number of ploughs. *Vice versa*, we may take manors of the Archbishop situate in Holderness, and we find that they conform, not to the local rule of the equality of ploughs and carucates, which prevails in Drogo's manors, but the rule which prevails in the manors of the Archbishop situate elsewhere. Thus, in Eske, a Holderness manor of the Archbishop, there were two carucates, and land to one plough; in Tickton, twelve oxgangs, and land to six oxen; and in Wawne $2\frac{1}{4}$ carucates, and land to one plough. It is evident that the ratio depends, not on local situation, or on the nature of the soil, but on some rule or custom of the manor, or on the method of tillage.

The true explanation cannot fail to suggest itself when once the problem is thus stated. We have already seen, from an examination of the Ordnance Map, that the townships of the East Riding may be divided into two classes—those in which the arable lay in two fields, and those in which it lay in three.

With the aid of Domesday we may also divide the East Riding manors into two classes—those in which the number of carucates equals the number of ploughs, and those in which it is double.

The only question which remains to be answered is this : Do these two classifications agree or do they not ? If they agree the mathematical chances are overwhelming that we have found the explanation we are seeking—that we have, in fact, discovered a test by which the two-field manors in Domesday can be distinguished from the three-field manors.

I have gone through the six-inch Ordnance Map of the East Riding, and made complete lists of those townships in

which the names of the open arable fields are preserved so perfectly as to show which of them were divided into two fields, and which into three fields. I have also gone through the Domesday returns, making a list of those townships in which the number of carucates was equal to the number of ploughs, and another of those in which the carucates are double the ploughs. The lists themselves are too long for insertion, but the summary of the results of the inquiry seems to me to be conclusive.

There are 50 townships as to which the map shows plainly that the land lay in two fields, and in 44 of these we find from Domesday that the number of carucates was equal to the number of ploughs. In the remainder the record is defective, usually owing to the number of ploughs not being stated.

Again, there are 52 townships in which the map shows three fields, and in 48 of these we learn from Domesday that the number of carucates was approximately double the number of ploughs.

Thus there are 102 townships in which the Ordnance Map enables us to discover the number of the ancient common fields, and in 92 of these the correspondence holds good ; and I have been able to add a few more from older maps and surveys. For instance, at Langton, a survey which must be earlier than 1617 shows that there were then three fields, East Field, Middle Field and West Field, the names of which have now been for-gotten. As far as the evidence is in existence it may be af-firmed that there are at least 100 townships in the East Riding in which the rule prevails.

Briefly to sum up the argument of the preceding pages, the map determines, in about one hundred townships, the former existence of the two-field or the three-field culture ; Domesday frequently states that the number of ploughlands was either equal to the number of ploughs or else double. These two classifications of East Riding townships practically

agree.   Where there are two fields the number of Domesday ploughlands is equal to the number of ploughs ; where there are three, the ploughlands are double the ploughs.   The agreement cannot be accidental.   The inference is irresistible, the one fact must be the explanation of the other.

Exceptio probat regulam.   There is a remarkable case where the rule apparently fails.[1]   On p. iv. of the Facsimile we read that in the manor of Burton Agnes, *sunt ad geldum xxv carucatæ terræ, quas possunt arare xv carucæ.*   The proportion of ploughlands to ploughs is neither equal nor double, but as 5 to 3.   This is anomalous.   The rule fails.   But, when we examine more narrowly, the rule is curiously confirmed.   The Domesday manor consisted of Burton, with its three berewicks of Grensmore, Harpham, and Boythorpe.   The text does not allot the number of carucates to each township, but if we turn to p. lxxxvii, we find, in the index to the East Riding Domesday, that the 25 carucates were apportioned thus : Burton, 12 ; Grensmore, 4 ; Harpham, 4 ; Boythorpe, 5.

	Number of Fields	Number of Carucates	Number of Ploughs
Burton . . .	3	12	6
Grensmore . . .	3	4	2
Harpham . . .	3	4	2
Boythorpe . . .	2	5	5
Totals . .	—	25	15

The map shows that Burton, Grensmore, and Harpham which are contiguous townships, had, each of them, three fields, whereas at Boythorpe, which lies detached in another hundred, among two-field manors, there were only two fields, now called Boythorpe Field North side and Boythorpe Field

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[1] Some other exceptions which I have discovered seem also to confirm the rule. In some townships there were two manors, one worked on a two-field, and the other on a three-field shift.   Occasionally the map shows one large field, and two small ones which seem to have been worked together as a single field.   Some cases in which the rule fails are discussed further on.

South side. If, as in the foregoing table, we apportion the ploughs to the carucates according to the rule, we get a result which agrees with the Domesday statement.[1]

We now see the reason of the prevailing ratios of carucates to ploughs. It depended on the system of tillage. When the land lay in two fields—that is, when half the land was always in fallow—the number of ploughs was normally equal to the number of carucates. When the land lay in three fields, that is, when only one-third was always in fallow, the number of ploughs was normally one-half the number of carucates. But this result is exactly the opposite of what we should expect. If two-thirds of the whole arable was annually tilled, it would surely require a larger proportionate number of ploughs than if only one-half were annually tilled, whereas we find the number is much smaller, only one-half as many ploughs being required.

The explanation of this seeming anomaly lies in an important and novel proposition, which I hope to establish. The proposition is this : The geldable carucate of Domesday does not signify what the carucate usually signifies in other early documents. The *carucata ad geldum* is not, as commonly stated by Domesday commentators, the quantity of land ploughed in each year by one plough, but it is the quantity tilled in one year IN ONE ARABLE FIELD by one plough.

With a two-field shift, since only one field was in tillage in any one year, the land tilled in the year by one plough would

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[1] We may thus explain a not unfrequent anomaly, where the ratio of carucates and ploughs is as 3 to 2. Two carucates in three fields would require one plough, and one carucate in two fields would also require one plough, giving a total of three carucates and two ploughs. In such cases there may originally have been two manors in the same township, or the land may have been of unequal quality, the heavy land being worked on a two-field shift and the light land on a three-field shift. Other exceptional cases may be due to a change from a two-field to a three-field shift in post-Domesday times. There are three or four cases in the East Riding where the number of ploughs exceeds the number of carucates. This is more common in other counties, and in some instances, as will presently be shown, arose from the adoption of a system of tillage unsuited to the soil.

be the same as the quantity tilled by one plough in one field. Here the arable carucate and the geldable carucate are the same. Hence in two-field manors the number of ploughs is equal to the number of geldable carucates. But with a three-field shift, the autumn tillage in one field and the Lent tillage in another by the same plough would each count as a geldable carucate, and hence the number of carucates *ad geldum* would be double the number of carucates *ad arandum*—that is, it would be double the number of ploughs.

We have now arrived at a theoretical solution of the greatest difficulty which has perplexed Domesday commentators ; but as yet we have obtained only *ratios*. It still remains to be seen whether any trustworthy results as to the absolute acreage of the *carucata ad geldum*, and of the *terra ad unam carucam* are attainable. It is, however, plain that the area of the carucate would differ in three-field and in two-field manors : in one case it was half, and in the other the whole of the tillage of the plough.

I will first examine some of the documentary evidence as to the size of the carucate, and then proceed to adduce actual measures in East Riding townships.

The earliest, and also the most definite authority, in fact the only evidence of supreme importance, is the statement in an anonymous work which goes by the name of Fleta, written in the reign of Edward I., about two hundred years after Domesday was compiled.

Fleta tells us that if the land lay in three common fields, the carucate contained 180 acres, sixty for winter tillage, sixty for Lent tillage, and sixty for fallow ; but if it lay in two fields, then the carucate contained 160 acres, eighty for fallow, and eighty for winter and Lent tillage.[1]

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[1] It may be as well to quote the exact words :—' Item certificetur in primo adventu suo de custagiis carucarum in quocunque manerio quæ sciri poterunt per hanc rationem, ut terræ sint tripartitæ, tunc nonies xx acræ faciunt carucatam, eo quod

By means of this authoritative statement it becomes possible to reconcile a great number of incidental notices as to the area of the carucate, and its eighth part, the bovate, notices which have seemed to be so hopelessly at variance, that commentators, in despair, have come to the conclusion that the chief Domesday land measures denoted no fixed areas, but varied in different places.[1]

Taking Fleta's account as our guide, we now see that, in a three-field manor, the Domesday *carucata ad geldum* should be sixty acres; the arable or tillage carucate, the *terra ad unam carucam*, 120 acres; and the whole carucate, including the idle shift, *ad warectandum*, 180 acres. By the *Anglicus numerus*, or great hundred of six score, these figures would be respectively 72, 144, and 216 acres. In a two-field manor, both the geldable and the arable carucate should be eighty acres, and the whole carucate, including the idle shift, 160 acres; figures which by the great hundred would be 96 and 192 acres. Since eight Domesday bovates make one carucate,[2] we should also expect to meet with bovates of one-eighth of these areas, viz. of $7\frac{1}{2}$, 15, $22\frac{1}{2}$, 9, 18, 27, 10, 20, 12, and 24 acres, according as they were reckoned in one or more fields, in two-field or three-field manors, and by the Norman or the English score.[3]

There are numerous incidental notices of the areas of

lx in hyeme, lx in quadragesima, et lx in æstate pro warecto debent exarari. De terris vero bipartitis, debent ad carucam octies xx acræ computari, ut medietas pro warecto habeatur, et medietas alia in hyeme et quadragesima seminetur.' Fleta, lib. 2. cap. 72, *De Officio communis Senescalli*, §§ 4 and 5.

[1] See Ellis, *Introduction to Domesday*, pp. xlvii., xlviii. Sir H. Ellis comes to the conclusion that ' the truth seems to be ' that the Domesday land measures ' contained no certain number of acres, but varied according to different places.' Mr. Eyton's carucates vary from 244 to 1,000 acres. Mr. Kemble argues that the hide was not more than 40 acres. Canon Greenwell thinks the land measures ' varied with the nature of the soil,' and Canon Raine considers they were ' somewhat uncertain.'

[2] See Appendix, Note A.

[3] I have discussed the size of the Bovate in an article in *Notes and Queries*, 7th Series, vol. ii. p. 481.

carucates and bovates which do actually conform to these figures, which are those we should theoretically expect. These notices go back to a period 260 years before Domesday was compiled, and come down to comparatively recent times. In an Anglo-Saxon charter [1] belonging to about 958 A.D., Ælfgár bequeaths a hide of 120 acres. This would be the tilled area of a hide of 180 acres in a three-field manor. In another and earlier charter,[2] we have in the year 825 a donation to St. Guthlac of *manerium meum de Baslon, cum quatuor carucatis terræ arabilis, continentes in longitudine octo quarentenas, et octo quarentenas in latitud'ne.* This would give 64 square quarentenes, which, at ten acres each, would amount to 640 acres, or 160 acres for each carucate. This would be the whole arable in both fields of a two-field manor. The length and breadth would of course include the fallow as well as the tilled field.[3]

The importance of this evidence is obvious. It proves that the normal size of the carucate in two-field and three-field manors, a century or two before the Conquest, was the same as it was in Fleta's time, two hundred years after Domesday was compiled.

It is remarkable that there is only one direct statement in Domesday Book itself, from which the area of the carucate can be inferred. This passage, which has been repeatedly quoted, occurs on the second folio of the Kent Domesday. *In communi terra Sti. Martini sunt CCCC[æ] acræ et dimid. quæ fiunt II solinos et dimid.* The Kentish ploughland or ' sulung '

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[1] *Codex Diplomaticus*, No. 1222 (vol. vi. p. 11).

[2] *Cod. Dipl.* Nos. 221, 233, vol. i. pp. 286, 306. Kemble marks these charters as doubtful, but this does not affect their value for our purpose.

[3] The charters, Nos. 213, 233, also mention a plot of ground at Langtoft 15 quarentenes long, and 9 broad, containing 6 carucates. This would give 22½ square quarentenes, *i.e.* 225 acres, to the carucate, whereas the carucate of 180 acres by the great hundred would amount only to 216 acres. If the land was irregular in shape, and the greatest length and breadth were taken, as is usually the case in Domesday, the difference would be explained, or possibly roadways may be included.

is the English equivalent of the *carucata* of the Danish shires.[1]
Its area was the same, for if 2½ sulungs contain 450 acres,
one sulung would contain 180 acres; or a carucate reckoned
in all three fields of a three-field manor.

The post Domesday evidence which bears most nearly on
the Yorkshire Domesday is the Boldon Book of Durham,
which contains a survey, made in 1183, of the manors belong-
ing to the See of Durham. It is therefore later by less than
a century than Domesday Book, and unlike the other early
surveys, the *Liber Niger* of Peterborough, and the Domesday
of St. Paul, it deals with northern lands where the carucate
takes the place of the southern hide.

In the Boldon Book, the size of a carucate is only once
expressly stated, but the size of others can be inferred from
the number of scatpennies paid, while in numerous instances
the acreage of bovates is stated or implied, and since eight
bovates normally constituted a carucate, the acreage of the
corresponding carucates can be readily computed. In the
Boldon Book, the acreage of 1,659 holdings is given directly
or indirectly, and all of them, without exception, accord with
Fleta's statement as to the area of the carucate. The three-
field shift seems to have generally prevailed, as there are
1,238 holdings in which it is implied, 1,222 by the small
hundred, giving carucates of 60 acres, and 16 by the great
hundred, giving carucates of 72 acres. When the land lay in
the more primitive two-field shift, the older numeration was
usually adopted, as there are only 23 holdings implying caru-
cates of 80 acres, and 230 implying carucates of 96 acres, or
80 by the great hundred. There are 168 holdings where the

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[1] *Solini vel solina sunt et carrucata.* Ducange, s. v. *Solinum.* We read also
in the Register of Battle Abbey, of *septem swulingarum, id est hidarum,* and in a
Canterbury Charter *Terra trium aratrorum quam Cantiani dicunt three Swollinges.*
Ellis, *Introduction,* p. xlix.

VOL. I.   M

land seems to have been converted from a two-field to a three-field shift.[1]

The *Liber Niger* of Hexham, though dating only from 1479, affords valuable information to the same effect. The greater portion of the lands of this monastery lay in Northumberland, where, at the time of the survey, the division into carucates and oxgangs had fallen into disuse; but it possessed five Yorkshire manors, in which the old land division still prevailed. The *Liber Niger* records the acreage of 216 Yorkshire holdings, of which 191 imply carucates of 60 acres, 170 being by the large hundred and 21 by the small; there are 24 holdings which imply carucates of 64 acres, which resulted from a two-field manor by the large hundred being converted into a three-field shift,[2] while there is one case which implies a holding in a two-field manor by the large hundred.

I have collected a considerable number of incidental statements as to the area of the carucate and bovate from Yorkshire monastic charters and deeds, dating from the Conquest to the Reformation, which confirm Fleta's statement as to the size of the carucate in two-field and three-field manors. The evidence is given in the Appendix,[3] and it may here suffice merely to state the results. According to Fleta, the carucate in one field of a three-field manor was 60 acres, which would be 72 by the great hundred, while in a two-field manor it was 80 acres, or 96 by the great hundred. The actual acreages are as follows :—

(1.) *Carucates in three-field manors by the small hundred—normally 60 acres.*

	A.	R.	P.
Rokeby	63	0	8
Salton (demesne)	60	0	0

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[1] A summary of the evidence for this account of the acreage of the Durham holdings is given in the Appendix, Note B.

[2] A two-field carucate by the great hundred would contain 192 acres, which if repartitioned into three fields would give 64 acres in each field, with bovates of 8 acres. In some districts this converted carucate of 64 acres is the most usual.

[3] See Appendix, Note C.

	A.	R.	P.
Flaxton	60	0	0
Little Barugh	64	0	0
Winksley	64	0	0
Normanby	60	0	0
Stainburn	64	0	0
Ingelby (Gisburn)	62	0	0
Ingelby (Hexham)	60	0	0

(2.) *Carucates in three-field manors by the great hundred —normally 72 acres.*

	A.	R.	P.
Scorton	72	0	0
Dishforth	71	2	0
Winksley	70	0	0
North Cowton	71	1	13
Great Barugh	72	0	0
Edston	72	0	0
Brawby	72	0	0
Salton (villans)	72	0	0
Stainton-le-Street	72	0	0

(3.) *Carucates in two-field manors by the small hundred—normally 80 acres.*

	A.	R.	P.
Baldersby	80	0	0
Ellewick	80	0	26
Aberdeen	80	0	0
Herfortun	80	0	0

(4.) *Carucates in two-field manors by the great hundred—normally 96 acres.*

	A.	R.	P.
Kirkby	96	0	0
Chesterhope	96	0	0
Sethon	96	0	0
Giseburn	96	0	0
Rainton	96	0	0

To this evidence it may be objected that the round numbers indicate that the areas were not accurately measured, but only roughly computed, and also we cannot in every case be certain that the acres mentioned in the documents were really statute acres, as there seems to be reason for supposing that in certain localities the acres were either larger or smaller than the normal acre.[1]

It will therefore be satisfactory if, instead of relying exclusively on ancient documentary evidence, we can discover

[1] See Appendix, Note D.

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townships in which the area of the Domesday arable continued under plough till recent times, so as to test the Domesday land measures by the measurements of modern surveyors, who, beyond doubt, measured by statute acres. We may thus satisfy ourselves, not only of the correctness of Fleta's account of the acreage of the carucate, but may also ascertain whether the geldable carucate of Domesday in a three-field manor was 60 or 120 acres—that is, whether it was reckoned in one field only or in both of the two tilled fields, a matter as to which we derive no information from Fleta's statement, and which has hitherto escaped discussion.

From modern surveys and estate maps compared with the statements in Domesday Book, I have obtained the following results for the area of the *carucata ad geldum* and of the *terra ad unam carucam* in three-field townships.

	Geldable Carucate			Land to one Plough		
	A.	R.	P.	A.	R.	P.
Burton Agnes	60	2	0	121	0	0
Haisthorpe	60	3	6	121	2	13
Thornholm	63	2	34	127	1	28
Langton	63	2	17	127	0	34
Kirby Underdale . . .	64	0	0	128	0	0
Wold-Newton . . .	67	1	18	117	2	27

I desire to draw particular attention to these cases, of which the details are given in the Appendix,[1] as the knowledge of the area of the arable in each of the three fields makes it possible to establish as a matter of fact the theorem at which we have only arrived by a process of inference, that in three-field manors the Domesday geldable carucates were double the number of ploughs, its *carucata ad geldum* being reckoned only in one field, while the *terra ad unam carucam* was reckoned in two fields; and further we arrive at the more exact conclusion that the former was normally 60 acres, and the latter 120 acres.

[1] See Appendix, Note E.

We have, in next place, to investigate the area of the carucate in two-field townships. Here the problem is more simple, and the available evidence more abundant.

According to Fleta's account the carucate in a two-field manor was 160 acres, of which 80 acres were in tillage and 80 in fallow. The Domesday geldable carucate would be the same as the arable carucate, 80 acres, or 96 by the great hundred.

From maps and surveys of two-field townships I have obtained the results given in the Appendix,[1] which may be tabulated as follows :—

AREA OF THE DOMESDAY GELDABLE CARUCATE IN TWO-FIELD MANORS.

(1.) *By the small hundred—normally* 80 *acres.*

	A.	R.	P.
Catfoss (map of 1730)	80	1	13
Rowton (map of 1740)	81	3	22
Bewholme (Inclosure Act)	79	0	7
Rowlston (Tithe Map) 1858 . . .	79	3	24
Rise (map of 1702) { carucate . . .	84	2	24
{ land to one plough .	79	1	18
Keyingham (Franchise Fee)	80	0	0
Welwick (1705)	80	0	0
Patrington (1665).	80	0	0

(2.) *By the great hundred—normally* 96 *acres.*

	A.	R.	P.
Withernwick (Inclosure, reputed acreage) .	93	3	0
Elsternwick (1766) ' on average ' . . .	96	0	0
Brandsburton (1632)	95	3	8

The foregoing instances may perhaps suffice to prove that, at all events in the East Riding of Yorkshire, Fleta's statement as to the normal size of the carucate in two-field and three-field manors is substantially correct. It is most improbable that so early and well-informed a writer should have been wholly at sea as to a matter of which he must have had personal cognisance, and the disregard of his evidence by modern writers must be explained by the fact of their having

[1] See Appendix, Note F.

failed to grasp the significance of the common-field system of agriculture, which is the key to any true understanding of the Domesday record.[1]

We may take it then as established, that in Yorkshire the geldable carucate of Domesday was normally 80 acres with a two-field shift, and 60 with a three-field shift, either by the small or the great hundred.

I have discovered some exceptional cases, but I think they can be explained without any very great difficulty.

They class themselves in two divisions:

1. Where there has been a change from a two-field to a three-field shift.

2. Where the customary course of husbandry was unsuited to the nature of the soil, and was modified accordingly; for instance, where we have a two-field township on light soil, or a three-field township on heavy soil.

As instances of the first anomaly I will take Sutton and Stainton; as instances of the second, Leven and Burstwick.

Sutton in Holderness is one of the two or three exceptions to the rule already laid down, that where the modern map shows three arable fields the number of Domesday carucates is double the number of ploughs. Sutton was inclosed in 1764 by Act of Parliament. There were then about 780 acres of arable in three common fields. This corresponds to the 3¼ carucates held by Drogo. The number of ploughs is not expressly stated, but we may safely assume that, as in the rest of Drogo's manors, the number of ploughs was equal to the number of geldable carucates. There should, therefore, according to our theory, have been only two arable fields, instead of the three which we find in 1764. Now 780 acres in three fields gives an average of 260 acres in any one field, and

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[1] Thus the *Athenæum*, in its account of the Domesday Commemoration, complains that a certain paper 'was tinged too deeply with the common-field theory. It would be as reasonable to complain that a paper on the motions of the moon 'was tinged too deeply with the theory of gravitation.'

520 in any two. If we treat it as a three-field manor, we obtain 160 acres (520÷3¼=160) for the geldable carucate, instead of 60 acres as it ought to be, while if we treat it as a two-field manor, the geldable carucate is 120 acres (390÷3¼=120), instead of 80, and the arable carucate comes out either as 160 or 80 acres.

An inspection of the map explains these anomalies. There seem to have been two original fields, East Field and West Field, to which the Domesday statement refers, while at some subsequent time a third field, of equal extent, was taken out of the North Carr.   This is indicated by its name, North Carr Field.   Assuming that the carucates retained the customary acreage of the two-field carucate, 80 acres in each field, instead of being reduced to 60 acres as in original three-field townships, everything becomes clear.   Excluding the North Carr Field, the Domesday carucates are found to be of the normal size, while if we include it the abnormal size of the carucates in a three-field shift is accounted for at once.

I have discovered another instance in which the same thing seems to have been done in the same way, though the evidence as to the fact is of an entirely different nature.   In the Cartulary of the Priory of Finchale there is only one mention of the acreage of a bovate or carucate.   In 1284, Reginald de Wynterse gave to the Priory two bovates of arable, containing 60 acres, at Little Stainton in the parish of Bishopton, county Durham.[1]   A bovate of 30 acres implies a carucate of 240 acres, which would arise from a third field being added in a normal two-field manor.   The original carucate would contain 160 acres in two fields, which would become 240 acres by the inclosure from the *pastura* of a third field of the same size as the other two.

In some cases a two-field shift seems to have been converted into the more profitable three-field shift by taking in a

[1] *Charters of the Priory of Finchale*, p. 59.

third field out of the *pastura*, and retaining the customary size of the oxgangs (either 10 or 12 acres), but reckoning 12 oxgangs to the carucate. This seems to have been the case at Etton.[1] Or a two-field carucate of 192 acres by the great hundred, if redivided into three fields, would give 64 acres to the carucate in each field, which is not at all uncommon. Or if a three-field township lapsed into a two-field shift, the carucate would be 108 acres, and the bovates 13½ acres, as at Warden.

The rule that the number of geldable carucates is either equal to the number of ploughs or else double is not universal even in the East Riding, and in other districts the exceptions are more numerous. Probably no single explanation will suffice ; in some cases the anomaly may have arisen from the exceptional value of the land, in others from recent extension of cultivation, or from geldation by some older assessment, or from favourable geldation, as was probably the case with certain monastic lands. Such explanations must be matters of conjecture, but there is another theory—differences in the nature of the soil, which would affect the possibilities of tillage—the validity of which can actually be tested.

I will take two typical cases :—Leven, where there were 6 geldable carucates and land to 4 ploughs ; and the converse case of Burstwick, where there were 4 geldable carucates, and land to 6 ploughs.

Leven was a two-field township, with 6 carucates, and land to 4 ploughs. From the Inclosure Act it appears that there were two nearly equal fields, North Field and South Field, containing between them 962 ac. 1 r. 35 p., or an average of 481 ac. 37 p. in each field. Dividing this

[1] At Etton in the last century there were three fields, and the oxgangs contained only 6 acres. Etton was in the fee of Mauley, in which 12 oxgangs seem to have gone to the carucate ; at least this was the case at Laytham and Goodmanham in the same fee. With 12 oxgangs to the carucate, the carucate would contain 72 acres in each field, *i.e.* 60 by the great hundred.

by 6, we get 80 ac. 33 p., which is the normal geldable
carucate in a two-field manor.   But dividing by 4, the
number of ploughs, we get 120 ac. 1 r. 9 p. to each plough,
which is the normal arable carucate in a three-field manor,
instead of the arable carucate of 80 acres usual in a two-field
manor.

Mr. Bethell, the owner of Leven, informs me that the soil
in Leven is much lighter and easier to plough than in the
neighbouring parishes; there is very little of the stiff blue
clay, while a great deal of land is peaty, and some is gravelly
and sandy.   Here then we have a two-field township in which
the size of the carucate was the same as other adjacent two-
field manors, but the land to each plough was 120 acres, as
in normal three-field manors.   Owing to the lightness of the
soil the work could be done by two-thirds of the usual number
of ploughs.

Burstwick is an exceptional case of an opposite kind.
Leven, with 6 carucates and 4 ploughs, is a two-field town-
ship on light land; Burstwick with 4 carucates and 6 ploughs
seems to be a three-field township on stiff soil.   On the
heavy Holderness clay we have seen that a plough could till
only 80 acres in the year, 40 in winter and 40 in Lent.   But the
geldable carucate in a three-field manor was 60 acres, which,
if clay land, would require 1½ plough to till.   Hence the four
Domesday carucates at Burstwick would require 6 ploughs to
till them, as Domesday records.

In Nottinghamshire, where there is some very heavy land,
the number of ploughs is occasionally double the number of
carucates.   If the oxen could plough only 30 acres in winter
and 30 in spring, the normal three-field carucate of 180 acres
would require two ploughs, and the number of ploughs would
be double the number of carucates instead of half.[1]

[1] In some counties where the carucates or hides instead of being double the
ploughs are only one-half or in some smaller ratio, I suspect that it is simply a

In the East Riding, as we have seen, Fleta's account of the normal size of the carucate in two-field and three-field manors holds good when brought to the test of experience. But whether it holds good in other districts is a question to be investigated by persons possessing local knowledge.[1] It may be that in some southern counties, where three-field husbandry was practised on clay soils, the hide or carucate contained 120 acres, forty in each field, instead of sixty.

There would be a reason for this, as there is a reason for the size of the carucate in the East Riding. There, as we have seen, the two-field shift with its tillage carucate of 80 acres prevailed over the Holderness clay, while the three-field shift, with its tillage carucate of 120 acres, prevailed over the chalk hills of the Wolds with their thin light soil. The reason is not far to seek.

Mr. Robert Wyse, of Malton, who has an extensive business as a land agent in the East Riding, informs me that the draught cattle required to work a farm in Holderness, and a farm on the Wolds, bear the same proportion to each other that they did at the time of the Domesday Survey. He says that in stocking a farm he reckons that a team which could cultivate sixty acres on a Wold farm could only till forty acres on a Holderness farm. The cause of the difference is not merely the greater tenacity of the soil, but chiefly the amount of moisture which it retains. On the Wolds, with a chalk subsoil, the land is dry enough for ploughing soon after

question of nomenclature, the plough being regarded as the unit of geldation and the carucate or hide as the unit of aration, and not the other way, as in the Yorkshire Domesday.

[1] I would especially direct the attention of local inquirers to Derbyshire, where, if we may judge from Domesday, the two-field shift was more common than in any other county, and to the Lindsey and Kesteven Ridings of Lincolnshire, where, to judge from some old estate maps to which I have had access, the conditions are as favourable for such an inquiry as in the East Riding. The counties of Huntingdon, Berks, Wilts, North Hants, Warwick, and Oxford, where inclosures have been comparatively recent, might also repay investigation.

rain, and horses can work all the year through on nearly
every day except when it is actually raining, whereas in
Holderness, as soon as rain falls, ploughing has to cease till
the land dries. A team of two horses can manage about an
acre a day, but in Holderness there are barely forty days in
autumn and forty in spring during which the horses can get
on to the land, whereas on the Wolds they can work nearly
every day, except when there is frost. Hence we see why
the ·Domesday arable carucate in the two-field Holderness
township was eighty acres, or eighty days' work, half, as Fleta
says, for winter ploughing, and half for Lent ploughing, while
in the three-field Wold townships the arable carucate was 120
acres, 60 acres in one field for winter ploughing, and 60 in
another for Lent. ploughing. But in the South of England,
where the three-field shift seems to have been usual on all
soils, it would be more convenient on clay land for the caru-
cate to consist of 120 acres, 40 in each of the three fields.

I have confined myself in this paper to the area of the
carucate, leaving the more difficult question of the area of the
hide to other inquirers. The hide in Bede seems to denote
the holding of one household, and may probably be equivalent
to the Virgate or Husbandland of later times. But the
Domesday Hide of the southern counties must generally
correspond, as the unit of assessment, to the carucate of the
North. Mr. Pell[1] has cited several cases in point. Thus at
Oakington, in Cambridgeshire, the hide in the *Placita* (18
Edw. I.) is said to contain 120 acres, and at Shepreth the
Hundred Rolls mention a hide of 120 acres. At Rattendon,
in Essex, according to a MS. of 1277, the parson holds half
a hide, which contains sixty acres. It may be a question
whether these measurements refer to the whole hide, or only
to the part tilled in any one year—that is, whether the whole

[1] Pell, *On the Domesday Geldable Hide*, in Cambridge Antiquarian Society's
Communications, vol. vi. p. 70.

hide, including the fallow, was 180 acres or 120.   Some light
is thrown on this question by an entry in the Domesday of
St. Paul's, which tells us that at Runwell *hida continet sexcies
viginti acras, set antiqua inquisitio dicit quod non consuevit
continere nisi quatuor viginti*. I take this significant statement
to mean that a two-field manor had been converted into a
three-field manor.   At the time of the *antiqua inquisitio* the
hide contained 80 acres always under plough in a two-year
shift, or 160 in all, including the idle shift.   In 1222, when
the new Inquisition was made, the hide contained 120 acres.
If the hide of 80 acres excluded the idle shift, so, we must
hold, did the hide of 120 acres,   Apparently twenty acres
had been taken in from the *pastura*, and added to the whole
hide of 160 acres, making 180 acres in all, and this was then
redivided into three fields, giving 60 acres in each field, or
120 acres in the two tilled fields.

     If this explanation be correct, it tends to show that Fleta's
statement as to the size of the carucate, which it has been
the object of this paper to establish and explain, holds good
in the South of England as well as in the North.   But on this
point I do not offer any positive opinion, as I do not possess
the local knowledge on which alone trustworthy conclusions
can be based.   But, so far as the East Riding of Yorkshire
goes, Fleta's statement appears to me to have stood satisfac-
torily every test that could be applied to it.   If it can be
extended, by other investigators, to the rest of England,
many volumes of Domesday exposition, including among
others Mr. Eyton's ' Key to Domesday,' may be finally
consigned *al limbo dei bambini*.

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APPENDIX.

NOTE A (p. 159).

THE NUMBER OF BOVATES IN A CARUCATE.

THE carucate being the quantity of land tilled by one plough, and the normal plough being drawn by eight oxen, a bovate, which was originally the share of the tilled land appropriated to the owner of each of the associated oxen contributed to the co-operative plough, was normally one-eighth of a carucate. A demonstration that eight bovates went to one carucate is obtainable from the Yorkshire Domesday, in which county the holdings are first enumerated under the names of the tenants *in capite*, and are then summarised in a sort of index under the Hundreds. The following incidental statements show that eight bovates were assumed to make one caru- cate.

1. Drogo's land at Preston is entered in the text as 11 bovates, and in the index as 1 carucate and 3 bovates.

2. The King's land at Belby is given in the text as 4 bovates, and in the index as half a carucate.

3. The Archbishop's land at Tickton is given in the text as 12 bovates, and in the index as a carucate and a half.

4. The land belonging to St. John of Beverley at Routh is given in the text as 15 bovates, and in the index as one carucate and 7 bovates.

5. At Leavening the king holds two parcels of land, one of 10 bovates, and the other of 1 carucate and 6 bovates. In the index it is entered as 3 carucates in all.

6. At Sutton, in Scard Hundred, the king holds two parcels, one containing half a carucate, and the other 2 carucates and 2 bovates, which are added up in the index as 2 carucates 6 bovates.

7. At Sutton in Holderness the Archbishop holds 9 bovates, which is entered in the index as 1 carucate and 1 bovate.

8. At Kirby Underdale the king holds three parcels containing

respectively 6 bovates, 4 carucates and 2 bovates, and 1 carucate, which are added up in the index as 6 carucates.

9. At Anlaby the king holds two parcels, one of 9 bovates and the other of 2 carucates, which are added up as 3 carucates 1 bovate.

10. At Belby, the Bishop of Durham held half a carucate, which is entered in the Clamores as 4 bovates ; and also one carucate and 6 bovates, entered in the Clamores as 14 bovates.

11. In the soke of Howden the Bishop of Durham held half a carucate, and also 3 carucates 2 bovates, which are added up as 3 carucates 6 bovates.

In these cases it is assumed that 8 bovates made 1 carucate.

There is much post-Domesday evidence to the same effect. For instance Esk is returned in Domesday as containing 2 carucates, which is given as 16 bovates in a Survey of 6 Edw. I.

At Elsternwick 4 Domesday carucates reappear in 1766 as 32 oxgangs.

In 1228 Ralph of Skirlington gives 14 bovates at Atwick, which are described as consisting of a certain carucate, and 6 specified bovates, 2 in one place, 2 in another, and 2 in a third.[1]

Among the aids for knighting the Black Prince, we find in the fee of Roos, 20d. as the aid for 2 carucates, 5d. for half a carucate, 7½d. for 6 bovates, 2½d. for 2 bovates, and 1¼d. for one bovate.[2]

We now come to deal with certain exceptions. In the reign of Edward I. and afterwards, we occasionally find that 12 bovates went to the carucate. Thus at Laytham, in 1255, Peter de Mauley confirmed to the canons of Ellerton 6 bovates, being half a carucate.[3] But two centuries earlier, in this very manor, the carucate must have consisted not of 12 bovates but of 8 ; since in Domesday, Gislebert Tison holds 11 bovates in Laytham, which are entered in the index as 1 carucate and 3 bovates ; while these 11 bovates together with 7 bovates in Willitoft and 2 carucates in Gribthorpe, are added together as 4 carucates and 2 bovates ; showing by a double proof, that in 1086, 8 bovates made a carucate in Laytham, and not 12, as was the case in 1255. How can this change be accounted for? A carucate of 12 bovates might arise from the conversion of a two-field manor into a three-field manor. With a two-field shift the arable carucate of 80 acres would contain

[1] Poulson's *Holderness*, vol. i. p. 179.   [2] *Ib.* p. 60.
[3] Burton, *Monasticon Eboracense*, p. 261.

8 bovates of 10 acres each, but on conversion into a three-field shift, a normal arable carucate would contain 120 acres, and the bovates by custom would still be reckoned as 10 acres each, but there would be 12 of them, instead of 8.

Or possibly the statement in the *Monasticon* may be explained in a still simpler way. In a normal three-field manor, the carucate of 120 tilled acres would contain 8 bovates of 15 acres each in the two tilled fields. But if Peter de Mauley gave half of the whole carucate of 180 acres in severalty to the canons of Ellerton his gift would consist of 90 acres, which might be reckoned as 6 bovates of 15 acres each, being half a carucate.

There are, however, some other cases in which it is stated that 12 bovates made a carucate. Thus at Swine, in 1325, we are told that 12 bovates made one carucate,[1] and at East Halsham, in the fee of Bautry, the carucate contained 12 oxgangs.[2] Also at Goodmanham 12 bovates made a carucate, since Adam de Linton (13th century), confirmed 6 oxgangs, being half a carucate, to the canons of Ellerton.[3] Here, possibly, there may be an exception to the Domesday rule, that 8 bovates made a carucate. In Domesday the King holds one carucate and a half at Goodmanham, land which is entered in the index as 1 carucate and 5 bovates. If this be not a clerical error,[4] it would seem that here 10 bovates made a carucate in 1086. At Goodmanham the hills are very steep, and possibly 10 oxen were required to draw the plough instead of 8 as usual, a number afterwards increased to 12.

NOTE B (p. 162).

THE EVIDENCE OF THE BOLDON BOOK.

The Boldon Book, which has been published by the Surtees Society, is a Survey of the manors belonging to the See of Durham, compiled in 1183 by order of Bishop Pudsey. A comparison with Bishop Hatfield's Survey of the same manors, taken nearly two

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[1] Kirby's *Inquest*, pp. 440, 442.   [2] Poulson's *Holderness*, vol. i. p. 62.
[3] Burton, *Mon. Ebor.* p. 260.
[4] There are some undoubted clerical errors in Domesday. Thus the Bishop of Durham holds at Belby 3 carucates and 2 bovates, and also half a carucate, which are added up as 4 carucates and 6 bovates. Plainly the figures III. and IIII. have been confused. At Towthorpe, in like manner, II. and III. have been apparently confused.

centuries later, affords curious information as to the gradual dis-
integration of the old holdings and the changes in the tenures.

The only direct statement as to the area of the carucate contained
in the Boldon Book will be found at p. 34, where we read, *Eudo de
Lucels tenet in Farnacres i. carucatam de cxx. acris.* This shows that
in 1183, less than a century after Domesday, the arable carucate on
the borders of Yorkshire, near Sunderland, was 120 acres, equivalent,
with the idle shift, to 180 acres. Carucates of the same area are
indicated by the scatpennies paid, which were usually 2*d.* an acre.[1]
Thus we have one carucate held at 20*s.* and four cases of half caru-
cates held at 10*s.* which imply 120 acres of tillage, or 180 acres to
the whole carucate. The holdings of the villans are usually 2 bovates,
and the acreage of these bovates mostly supposes carucates of the
same dimensions as above. No less than 1216 bovates of 15 acres
are enumerated, They are either expressly said to be of that size,
or are shown to be so by the scatpennies of 2*s.* 6*d.* per bovate.[2]
These bovates of 15 acres imply three-field carucates of 60 acres in
each field.

A carucate of 160 acres in a two-field manor would be 192 acres
by the great hundred, or 96 acres in each field, and the bovate would
be 12 acres. The Boldon Book enumerates 196 bovates of 12 acres,
and 34 half-bovates of 6 acres, held usually by cotmen, which imply
carucates of 96 tilled acres. That the cotmen held by the *Anglicus
numerus,* and by a two-field shift, while the villans held by the
Norman number, and in a three-field shift, may indicate that the
cotmen belonged to an older stratum of population than the villans.

We have also in the Boldon Book indications of the conversion
of two-field manors into the more profitable three-field shift, in
which only one third instead of one-half of the land lay in fallow.

This could be done in several ways. A two-field carucate of
192 acres (160 by the great hundred) if redivided into three fields
would give carucates of 64 acres in each field, and corresponding
bovates of 8 and 16 acres. Or the change might be effected by

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[1] Thus 15 acres pay 2*s.* 6*d.*, and 12 acres pay 2*s.* The scatpennies are occa-
sionally more or less, according to the nature of the services rendered, but are
almost always so many pence per acre.

[2] That the acreage of the bovates in the Boldon Book may be safely inferred
from the scatpennies is shown by a reference to Bishop Hatfield's Survey, in which
the acreage of the bovates is often stated in townships where only the scatpennies
are given in the Boldon Book.

taking in a third field from the *pastura*. Thus we should get bovates of 10 and 20 acres, or of 12 and 24 acres by the great hundred. The Boldon Book enumerates 80 bovates of 16 acres and 70 of 8 acres, all in the same neighbourhood, while there are 22 bovates of 20 acres and 213 bovates of 12 acres, which, however, may be original two-field bovates. At Warden there were 18 bovates of 13½ acres. These may be bovates in a three-field manor by the great hundred which had lapsed into a two-field shift, giving carucates of 108 acres in each field, or bovates of 13½ acres. Or they may be explained as carucates of 192 acres, with 12 bovates to the carucate.

There are also 14 bovates of 9 acres and 2 of 18 acres, which are bovates in a three-field manor by the great hundred.

Of the 1,659 holdings whose area is given directly or indirectly in the Boldon Book there is only one which conflicts with Fleta's statement as to the size of the carucate. This is a holding of 37 acres, which, however, is shown by the scatpennies to have been reckoned as a holding of 40 acres, or 2 bovates of 20 acres each.

NOTE C (p. 162).

AREAS OF CARUCATES DEDUCED FROM MONASTIC CHARTERS.

(1.) *Carucates of 60 acres.*

At Rokeby, in the Wapentake of Gilling East, William de Gilling confirmed to Fountains Abbey one oxgang containing 6½ acres at 20 feet to the perch. This would be 7 ac. 3 r. 21 p. by the standard perch, and the carucate would be 63 ac. 0 r. 8 p.[1]

At Salton, near Helmsley, in the North Riding, the bovates in the demesne were 7½ acres, giving a carucate of 60 acres.[2]

The same was the case at Flaxton near Malton.[3]

At Little Barugh, in Kirby Misperton parish, there were bovates of 8 acres, giving carucates of 64 acres.[4]

At Winksley, in Claro Wapentake, Nicholas de Bellon gave to Fountains Abbey one oxgang containing 12 acres at 22 feet to the perch.[5] This would be 16 statute acres, giving a carucate of 64 acres in one field.

At Normanby, in the North Riding, Richard Loftus gave to

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[1] Burton, *Monasticon Eboracense*, p. 191.   [2] *Liber Niger of Hexham*, p 73.
[3] *Ib.* p. 80.   [4] *Ib.* p. 66.   [5] Burton, *Mon.* p. 208.

Rievaulx Abbey one oxgang of 15 acres at 20 perches to the acre, which would be 7½ standard acres at 40 perches to the acre. The carucate was therefore a carucate of 60 acres in one field of a normal three-field manor.[1]

At Stainburn, in Claro Wapentake, Helias de Staynburn gave one oxgang, containing 8 acres, to Fountains Abbey. The carucate would therefore be 64 acres.[2]

At Ingelby, Robert son of Ralph quitclaimed to the Priory of Gisburn half a carucate, in which are 62 acres in tofts, and 5 acres of meadow. This would be a carucate of 124 acres in two fields of a three-field manor, or 62 acres in each field.[3]

But at Ingelby the Priory of Hexham held a bovate of 15 acres, implying a carucate of 60 acres only.

(2.) *Carucates of 72 acres, or 60 by the great hundred.*

At Greenberry Grange, in the township of Scorton and the Wapentake of Gilling East, the oxgang contained 18 acres. Hence the carucate would be 144 acres, or 72 in each field.[4]

At Dishforth, in 1286, Radulph de Disceford gave 143 acres to Fountains Abbey, with as much pasture as belongs to one carucate.[5]

At Winksley, in Claro Wapentake, William de Carleton quit-claimed to Fountains Abbey a carucate of 140 acres (i.e. 70 acres in each field) together with 20 acres of meadow and 20 acres of wood-land.[6]

At North Cowton, near Richmond, Rainer de Couton confirmed to Fountains Abbey the fourth part of half a carucate, containing 26 ac. 3 r. which his father had given. The carucate would be 214 acres in three fields, 71 ac. 1 r. 13 p. in one, or 142 ac. 2 r. 26 p. in two.[7]

At Great Barugh,[8] near Malton, and at Stainton-le-Street[9] in Durham, there were bovates of 18 acres, implying carucates of 144 acres in two fields, or 72 acres in one.

At Little Barugh,[10] at Edston,[11] and at Brawby, all near Malton, the bovates were of 9 acres, and the same was the case with the bovates in villanage at Salton.[12]

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[1] Burton, *Monasticon Eboracense*, p. 362.   [2] *Ib.* p. 202.   [3] *Ib.* p. 347.
[4] *Ib.* p. 167.   [5] *Ib.* p. 162.   Cf. Kirby's *Inquest*, p. 183.
[6] Burton, *Mon.* p. 208.   [7] *Ib.* p. 159.
[8] *Liber Niger of Hexham*, p. 68.   [9] *Ib.* p. 60.   [10] *Ib.* p. 66.
[11] *Ib.* pp. 77, 78.   [12] *Ib.* p. 73.

(3.) *Carucates of* 80 *acres.*

At Birkhou, in the township of Baldersby, Cecilia de Stuteville gave one carucate of land, in which are 80 acres, to Fountains Abbey.[1]

At Ellerwick, in 1212, the demesne lands of the Priory of Gisburn were settled to be 481 acres, which seems to be 3 carucates of 160 ac. 1 r. 13 p.[2]

Skene quotes a case from the north of Scotland in which half a carucate contained 80 ac.[3]

In the South of England there are traces of two-field manors, as in the case of Herfortun where the carucate was 160 acres,[4] though the three-field system seems to have been more general than in the more backward counties of the North.

(4.) *Carucates of* 96 *acres.*

At Kirkby in Cleveland,[5] and at Chesterhope in Redesdale,[6] the bovates were 12 acres, implying carucates of 96 acres.

Walter Carrou gave to Gisburn Priory 2½ oxgangs in Sethon, containing 60 acres. Hence the oxgang would contain 192 acres, or 96 in each field.[7]

William de Brettevilla gave to the same Priory one oxgang of 12 acres in the fields of Gisburn.[8]

At Rainton, in the North Riding, the oxgang contained 12 acres.[9]

NOTE D (p. 163).

THE LENGTH OF THE PERCH, AND THE AREA OF THE ACRE.

We occasionally meet with records of acres which are said to be measured by the perch of 10, 16, 19, 20, 22, and 25 feet, instead of 16½ feet, as in the standard acre, and also of acres at 18, 20, and 22 perches to the acre instead of 40. See the cases quoted from Dugdale's *Monasticon* by Ducange, *s.v. Pertica, Carrucata,* and *Quarentena.* Other instances will be found in Burton's *Monasticon,* pp. 170, 178, 181, 190, 191, 208. The carucates containing these abnormal acres, if reduced to standard acres, will, however, be found to conform to Fleta's rule.

[1] Burton, *Mon.* p. 152.   [2] *Ib.* p. 343.
[3] Skene, *Celtic Scotland,* vol. iii. p. 225.
[4] Nasse, *Agricultural Communities,* p. 57.
[5] *Liber Niger of Hexham,* p. 70.   [6] *Ib.* cf. pp. 31 and 111.
[7] Burton, *Mon.* p. 352.   [8] *Ib.* p. 344.   [9] *Ib.* p. 195.

It may be noted that a carucate of 80 acres by the perch of 20 feet, would be nearly equal to a carucate of 96 acres by the standard perch ; and a carucate of 120 acres by the perch of 10 feet to a carucate of 80 acres by the standard perch ; and 80 acres by the perch of 25 feet to 120 acres by the standard perch. Hence bovates and carucates by the great hundred of six score, if measured by the great perch of 20 feet, would be equivalent to bovates and carucates by the small hundred of five score measured by the small perch of 16½ feet.

By varying the length of the perch it would also be possible to reduce to a common standard the bovates in two-field and three-field manors. The normal two-field bovate of 10 acres measured by a 10 foot perch would be counted as 15 acres, and *vice versâ*, the normal three-field bovate of 15 acres measured by a 25 foot perch would be counted as 10 acres. We may thus possibly find a reason for the exceptional employment of these local perches. The perch, or *virga*, was itself doubtless merely the oxgoad, which, laid upon the ground at the headland, would conveniently measure the breadth of the rig or sellion to be ploughed.

NOTE E (p. 164).

AREAS OF DOMESDAY GELDABLE CARUCATES, IN THREE-FIELD TOWNSHIPS, TESTED BY MODERN SURVEYS.

It is easy to ascertain the size of the *carucata ad geldum* and of the *terra ad unam carucam* in the township of Burton Agnes, of which there is an excellent Estate Map, made in 1809.[1] Till 1856 Burton Agnes remained in three open fields, divided into oxgangs and half-oxgangs by turf balks. We can therefore compare the modern measurement of the arable with the Domesday record. In 1809 there were 999 ac. o r. 18 p. in the three fields, East Field, Middle Field, and West Field. At some early time the lord seems to have inclosed between 80 and 90 acres, probably his demesne land, out of the common arable fields, as is indicated by the fact that the land lies in runrig. We thus obtain between 1,080 and 1,090 acres for the whole Domesday arable, which makes it possible to apply a definite test as to how the geldable carucate was estimated, whether in one field or in two. The arable averaged a little more than 360 acres in any one field, 720 acres in two, or 1,080 in all three.

[1] See p. 55, *supra*, where the map is reproduced,

At the time of the Domesday Survey there were 12 geldable carucates and land to 6 ploughs. According to Fleta the carucate would be 60, 120, or 180 acres according to whether it was reckoned in one, two, or three fields. Knowing the size of the fields at Burton Agnes, we can ascertain by a positive test which of these areas was the geldable carucate of Domesday. By a simple division we ought to get the 12 Domesday carucates as a quotient by dividing the number of arable acres by the number of acres in the carucate. We will first try whether the geldable carucate was 180 acres.

We have

$$1080 \div 180 = 6$$
$$720 \div 180 = 3$$
$$360 \div 180 = 2.$$

In no case do we get the required quotient, which is 12. We next try 120 acres for the geldable carucate.

$$1080 \div 120 = 9$$
$$720 \div 120 = 6$$
$$360 \div 120 = 3.$$

We then try 60 acres, and obtain

$$1080 \div 60 = 18$$
$$720 \div 60 = 12$$
$$360 \div 60 = 6.$$

In one way only, by dividing 720 acres, the whole of the land tilled in any one year, by 60 can we obtain the required quotient of 12 which is the number of geldable carucates given in Domesday.

There was land to six ploughs, and we see from the foregoing calculations that we get 6 as a quotient in three ways, showing that 6 ploughs would suffice to till the land, whether we reckon the carucate at 180 acres in all three fields, or at 120 acres in the two tilled fields, or at 60 acres in any one field.

Therefore we are led to the conclusion that in a three-field manor the geldable carucate of Domesday was 60 acres—that is, it was the quantity tilled in one arable field in one year by one plough, whereas the whole quantity tilled in one year by one plough was 120 acres, or 60 acres in each of the fields tilled in any one year. Thus, and thus only, as it seems to me, can we explain why in three-field manors the number of geldable carucates is usually double the

number of *caruca*.   The *carucata ad geldum* is 60 acres, while the
terra ad unam carucam is 120 acres.

Hence we obtain the rule for finding the area of a Domesday
carucate in a three-field manor.

Divide two-thirds of the whole arable by the number of geldable
carucates, and we get the area of one geldable carucate.

Divide it by the number of ploughs, and we get the area tilled
annually by each plough, *i.e.* the *terra ad unam carucam*.

Thus at Burton Agnes 720 ÷ 12 = 60 acres for the geldable
carucate, and 720 ÷ 6 = 120 acres, for the arable carucate. Again,
to find the acres of arable in a three-field manor, add one-half to
the number of Domesday carucates, and multiply by 60 ; or, which
comes to the same thing, multiply the number of Domesday geldable
carucates by 90, and we get the acres of arable in all three fields.

We may now proceed to test these results in other townships.

The parish of Burton Agnes comprises not only the township
of Burton, but the townships of Haisthorpe and Thornholm. Of
these also I have surveys taken prior to the inclosures, and they give
similar results.   In the three fields of Haisthorpe there were 547 ac.
0 r. 20 p., giving an average of 182 ac. 1 r. 20 p. in each field, or
364 ac. 3 r. 0 p. in any two fields.   According to Domesday there
were six geldable carucates, and land to three ploughs.   Hence we
obtain 364 ac. 3 r. 0 p. ÷ 6 = 60 ac. 3 r. 6 p. as the size of each geld-
able carucate, while 364 ac. 3 r. 6 p. ÷ 3 = 121 ac. 2 r. 13 p. is the land
to one plough, or, as we may call it for convenience, the area of the
arable carucate.

At Thornholm there were about 670 acres in the three fields, or
446 on an average in any two.   From Domesday we learn that in
Thirnon there were 7 geldable carucates, which gives as before 63 ac.
2 r. 34 p. for the geldable carucate and 127 ac. 1 r. 28 p. for the
arable carucate.

At Langton there were, according to Domesday, 18 geldable
carucates, while from a survey which must be earlier than 1617 we
learn that there were 1,717 ac. 1 r. 27 p. in three fields, East Field,
Middle Field, and West Field, or an average of 1,144 ac. 3 r. 32 p.
in any two fields, which gives, as before, 63 ac. 2 r. 17 p. for each
geldable carucate.

Wold Newton is a township of which I have no ancient maps,
but from the Ordnance Survey it appears that there were about 1,060
acres in the three fields, East Field, West Field, and Top Field,

giving 706 acres on an average in any two fields. According to Domesday there were 11 carucates and land to 6 ploughs. This gives 67 ac. 1 r. 18 p. to the geldable carucate, and 117 ac. 2 r. 27 p. as the land to one plough.

At Kirby Underdale, Domesday gives 6 carucates, which would be 48 oxgangs. By a survey taken in 1590 there were then 48 oxgangs, containing 590 acres, which would give 65 ac. 2 r. 20 p. per carucate, or more probably 64 acres, as there is reason to suppose that 14 acres had been added to the arable from the *pastura*.

NOTE F (p. 165).

Areas of Domesday Geldable Carucates in two-field Townships, tested by Modern Surveys.

(1.) *By the small hundred, normally 80 acres.*

Catfoss in Holderness was a two-field manor. We learn from Domesday that there were 6 carucates, and land to 6 ploughs. The two fields are called East Field and West Field. From a survey made in 1730, it appears that there were 936 ac. 2 r. 13 p. of arable in the two fields, or an average of 481 ac. 3 r. 38 p. in each, which gives 80 ac. 1 r. 13 p. for the carucate measured in one field, and 160 ac. 2 r. 26 p. in both.

In Rowton, by a survey of 1740, there were 327 ac. 2 r. 11 p. of arable, or 163 ac. 3 r. 5 p. in each field. Domesday gives in Rugheton 2 carucates, and land to 2 ploughs, and in 1269 Matthew de Rowton held 2 carucates, namely the whole fee of Rowton. Hence the Domesday carucate was 81 ac. 3 r. 22 p. in one field, and 163 ac. 3 r. 5 p. in both.

Bewholme was at the time of the Inclosure [1] in two fields, East Field containing 435 ac. 2 r. 2 p., and West Field containing 417 ac. 2 r. 0 p. There seem to have been ancient appropriations of 31 acres out of the East Field, and of 25 out of the West Field. Hence the Domesday arable may be reckoned at 909 ac. 0 r. 2 p., or an average of 454 ac. 2 r. 20 p. in each field. According to Domesday, there were 5 carucates and 6 bovates *ad geldum*. Dividing by 5¾ we get 79 ac. 0 r. 7 p. as the area of the Domesday carucate.

Rowlston lay in acre and half-acre strips till about 40 years ago,

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[1] Poulson's *Holderness*, vol. i. p. 389.

when it was inclosed.   There were two common fields, Middle Field, and Sea Field of which a part has now been washed away by the sea. The total acreage according to the Inclosure Map was 767 ac. 1 r. 5 p. Deducting 347 ac. 3 r. 7 p. for the remains of the Sea Field, for the tofts and crofts, and the outlying land called Rowlston Seats, whose name shows it was the summer pasturage for the cattle, we obtain 419 ac. 1 r. 38 p. as the area of the Middle Field.   According to Domesday, there were in Roolfestone 5 carucates and 2 bovates. Dividing the present area of the Middle Field by 5¼ we obtain 79 ac. 3 r. 24 p. for the Domesday carucate.

In Rise there were, according to Domesday, two manors, one with 2 carucates and land to 2 ploughs, the other with 5½ carucates and land to 6 ploughs, or together 7½ carucates and 8 ploughs. From surveys made in 1702 and 1716 it appears that there were then 1269 ac. 3 r. 19 p. in two fields, North Field and Mill Field, or an average of 634 ac. 3 r. 29 p. in each.   This gives 79 ac. 1 r. 18 p. as the land to each plough, and 84 ac. 2 r. 24 p. for the carucate.[1]

At Keyingham, according to Domesday, there were 8 carucates and land to 8 ploughs.   According to the MS. of the Franchise Fee there were only 41 oxgangs, or 5⅛ carucates.   This is explained by a charter which shows that in the reign of Henry I., Saltagh, a member and parcel of Keyingham, containing about 800 acres, was detached and given to the Abbey of Meaux.   According to the Franchise Fee, each oxgang consisted of 10 acres in each arable field with Kirncroft, 4 roods in the Saltmarsh, 4 acres in the Ings, 4 acres in each Carr, and 3 roods in the common ground, being balks and marstalls in the fields.[2]   This is instructive, as showing how the bovates were made up of the original bovates of arable, with doles of pasture attaching to each.   Each of the 41 oxgangs contained 33 ac. 3 r. 0 p., or 1383 ac. 3 r. in all.   Hence Saltagh is plainly excluded, as the Domesday manor measured 2 leugas in length by 1 in breadth, which would give 2880 acres.   The 41 oxgangs, each containing 20 acres of arable, would amount to 820 acres, which agrees with the present amount, the two fields, East Field and West Field, containing

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[1] By an *Inquisitio post mortem* taken in 33 Edw. I., it appears that Walter de Fauconberg held in Rise certain bovates each of 7 acres.   If in Rise, as in the adjoining parishes of Swine, Coniston, and Halsham 12 bovates then went to the carucate, there would be 84 acres in each carucate, which agrees with the preceding calculation.

[2] Poulson's *Holderness*, vol. ii. p. 415.

about 650 acres between them, while there are about 170 acres in
Kirncroft. Hence the whole carucate in the two fields with Kirncroft
was 160 acres, or 80 acres in each field.

At Welwick the carucate was also 80 acres, as from the *Notitia
Parochialis* we learn that in 1705 an oxgang contained 10 acres.[1]

At Patrington in 1665 the fines for every oxgang were 20*s.*, and
for every acre arable, 1*s.* Hence the oxgangs, as at Keyingham,
contained 20 acres in the two fields, North Field and South Field,
or ten acres in each, and the carucate was 80 acres in one field and
160 in both.

(2.) *Areas of two-field carucates by the great hundred, normally* 96 *acres.*

In Withernwick there are two well-marked fields, North End Field
and South End Field. I have not been able to obtain access to the
Inclosure Map, which is in private custody, but it appears from the
Inclosure Act, passed 42 George III., that the open field contained
about 1,500 acres in two fields. According to Domesday there were
8 carucates. At 192 acres to the carucate, this would give 1,536
acres, sufficiently near to the rough estimate of 'about' 1,500 acres,
and some small crofts may have been inclosed between 1086 and
1802. If 1,500 acres, evidently a round number, were the exact
acreage of the open fields, the carucate would contain 93 ac. 3 r. o p.

At Elsternwick, called Astenewic in Domesday, there were 4 caru-
cates. In 1766 these 4 carucates are represented by 32 oxgangs, each
containing about 28 acres on an average, viz. 12 acres in each arable
field, and 4 acres of meadow ground in the Ings. Hence each
Domesday carucate contained 192 acres, or 96 in each field.

In 8 Henry IV., R. Todesham held 25 bovates, which, in the
reign of Elizabeth, are described as 300 acres of arable, which gives
12 acres to the bovate, proving that the bovates were then reckoned
only in the tilled field, whereas in 1766 they are reckoned in both
fields. It would appear that in the 16th century a man's 'terra'
consisted only of that portion of the common field which he had a
right to till in any one year, whereas in the 18th the ownership in
severalty in the fallowed field was recognised.

Brandsburton was inclosed in 1667. The decree for the inclo-
sure throws considerable light on the system of open field tillage.

[1] Lawton's *Collections*, p. 421.

It is dated 18 Charles II., and sets forth a survey and agreement made in 1632, and recites that 'every man's land lay intermixed in several places and by several quantities together,' and that 'in the common arable field of Brandsburton' there were in the East Field 1,174 acres, and in the West Field 1,321 acres, or 2,495 acres altogether, and that the custom was for 'one of the said fields to be sowed one year, and the other field another year.'[1] According to Domesday,[2] Drogo had 12½ carucates, which would give 95 ac. 3 r. 8 p. to the carucate, or 191 ac. 2 r. 16 p. in both fields.

DISCUSSION.

Mr. O. C. PELL said that they were all much obliged to Canon Taylor for the admirable papers that he had read to them. In regard to the relative positions of the Hundred and Wapentake, he thought he had shown fair ground to suppose that his views were correct, and he was very glad to find that Canon Taylor agreed with his views (contained in his Cambridge paper that he sent to him) in regard to the practical effect that the method of counting used by the Anglo-Saxons would have in calculating areas.

He wished he could entirely concur in his views in regard to the carucata. Unless he had misunderstood Canon Taylor (and it was very possible he had) he seemed to him to misapprehend the meaning of Fleta. Fleta spoke of the ploughs in the lord's demesne, aided as they were by the supplementary ploughs of the *homines*. In Fleta's directions he instructs the officers concerned to arrange so that each demesne plough, aided as it would be by the tenant's ploughs, should in a

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[1] Poulson's *Holderness*, vol. i. p. 270.

[2] A carucate belonging to St. John of Beverley, and not included in Drogo's manor, seems to have been previously inclosed in severalty, and is therefore not included in the common field inclosed in 1667.

two-course manor take 160 acres a year and in a three-course
180 acres ; but it was impossible that Fleta should mean, or
that the word ' carucata ' could mean, in any county, when
used in regard to a tenant's plough, that a plough of two or
four oxen could till an area of that size. In fact, in no county
in Domesday could such a meaning be given to the word
' carucata ' used as an areal measure therein.

The word ' carucata ' doubtless meant the land of one
plough, *but ploughs were not all of the same strength*.   There
would be the smallest plough or *carucata* of all, consisting of
one ox, as at Trewallen in Cornwall (Domesday, folio 123a)
which is shown in the Exon Domesday, folio 214, to have
joined with another ox in working one *caruca*, consisting as
appears by the Exon Domesday of the two oxen.   Again,
there would be the plough of one virgate, consisting of two
oxen, which is repeatedly alluded to in Domesday as a
carucata, for instance at Derbei (Domesday Book, Tom. I.
folio 269) *in unaquaque hida sunt VI caruc. terræ*, meaning
that in each hide of 120 acres there were six virgates of 20
acres ; so also (in Domesday Book, Tom. I. folio 235b) they
could read that in Medeltone in Leicestershire, ' *Ibi sunt VII
hidæ et una carucata terræ et una bovata.   In unaquaque hida
sunt XIIII carucatæ et dimidium,*' the explanation being that
the hides were in areas *juxta estimationem Anglorum*, i.e. by
the greater hundred, viz. 144 acres, giving virgates of about
ten acres ; there would be the associated ploughs or *carucæ*
of the *homines* (containing 1, 2, 3, 4, or more virgates) making
up *terræ* of 60, 72, 80, 90, 96, 108, etc., which very often were
meant when the word *carucata* was used in regard to the *terræ*
of the *homines*.   There would be the *libera carucata*, or the
terra free from services on the lord's land.   There would be
the supposed *carucata* of the whole manor of 120 acres, which
common standard Domesday Book calls a *hida*, *terra ad
carucam*, or *carucata ad geldum*, and uses as the unit of assess-

ment. There would be the lord's *carucata*, often double the
size of the *terra* of the *homines*, but varying according to the
amount of help received from the *carucæ adjutrices* of the
homines, and depending, amongst other things, on the extent,
if any, to which such services had been commuted for money
payments. Lastly, there would be the pattern plough of the
demesne, indicated by Fleta, consisting of 160 or 180 acres.
All these remarks apply to every county in England, including
Yorkshire, and if Canon Taylor would take the trouble to work
out the details of some manors in Yorkshire where bovates are
mentioned, and where he could thus find out how many *boves*
went to a plough (at Clifton, for instance, folio 313a, Domes-
day Book) he would see that a 'car' in many instances
implied the work of four *boves*, and they could not possibly
cultivate 160 acres in a year when they performed extra
services on the lord's land. The fact that the words (*x*) *car
possunt ere* in Yorkshire indicate the uniform taxable area
of 120 acres, which might or might not have a further area
of fallow of 60 in a three-course or 120 in a two-course manor
attached to it, which would or would not be taxed according
as it lay or did not lie *in communi* when it was unsown, and
which if taxed would go to make up (as far as it could go) a
second area of taxed land of 120 acres in extent.

Some months back he had sent to Canon Taylor the
paper which he had read at Cambridge two years ago, in
which all this was explained. He could not exactly make
out whether this was what Canon Taylor meant. If it was, of
course they both agreed.

Notes on Domesday Measures of Land.

By J. HORACE ROUND, M.A.

BEFORE commencing my notes on this thorny and notoriously
most difficult subject, I cannot but quote the words of one of
the editors of the Rolls Series, who, in his preface to the
Gloucester Cartulary, writes of the attempt to define these
measures of land: 'Such a proceeding is both rash and un-
justifiable, and it is a rock upon which some of the commen-
tators on Domesday have hopelessly wrecked their little bark'
(III. cix). In one sense such a verdict is justified. The con-
fidence, we might even say the rashness, with which this
subject has been approached, has been the cause of much
unprofitable work, and of a more serious consequence, namely
the spread of error. 'The dispersion of error,' Mr. Eyton
observes, 'is the first step in the discovery of truth.'[1] I would
ask you always to bear in mind this admirable maxim,
especially when I find it necessary to disprove the assertions
or the inferences of previous writers, which unless formally
disproved, would rightly be deemed of validity as possessing
the sanction of their authority. Indeed, it is one of our chief
difficulties in dealing with the Domesday Survey, that so
much has to be done in the way of clearing the ground before

[1] *Staffordshire Survey*, p. 177.

we can begin to lay the foundations of that stable structure
which modern scholarship is destined, we hope, to raise.
Broadly speaking, Domesday commentators have hitherto
been too ambitious. They would not begin at the beginning
and work slowly upwards. They seemed to imagine, so to
speak, that it was all plain sailing. Unfortunately, one might
almost be led to say that the more we learn of Domesday the
less we find we know. We have still to study the grammar
of our subject. For my part, I would welcome the real ascer-
tainment of any point, however small, bearing on the great
Record more cordially than a theory, however sweeping, how-
ever wide in its embrace, which did not rest on a secure foun-
dation, which could not be demonstrated and proved.

But now let me add that the problems of Domesday,
though hard, are not insoluble, and that, thanks to the labours
of modern students, we are really advancing. We do really
know more than those who preceded us ; and specially, as we
shall see, is this the case in the matter of measures of land.

The stumbling-block over which so many have fallen in
their researches on this question has been the use of the
Glossary. On this Mr. Eyton has well observed, in the preface
to his ' Key to Domesday ' (p. 1), that ' Domesday is its own best
interpreter, and that those who would understand Domesday
thoroughly must get their knowledge from Domesday itself ;
lexicographers and glossarists only perplex and mislead the
Domesday student. The question for us here is, not what a
word or expression may sometimes have meant etymologically,
or in its various and successive uses, but what that word or
expression did mean and must have meant ' in Domesday. I
look upon this principle as of the utmost value and importance.
Its earlier recognition would certainly have prevented incal-
culable wandering from the right path. At the same time, by
the side of this principle we should place that which was so
well expressed in the preface of Sir Henry Ellis :—'A patient

comparison of Domesday Book with the registers of our
earliest Abbeys is the surest way to accomplish its thorough
illustration: and this is to be effected not merely by the
examination of charters and partial surveys, but by the
scattered details of an historical kind with which many of them
abound' (pp. xv–xvii). To this I need only add that one of
the most useful tasks that we could accomplish would be to
compile an annotated list of all the other Surveys of the
Norman period, and, if possible, even to publish a collection of
all those not included in the Supplement to Domesday Book.

The two principles described above are, as it happens,
respectively exemplified in the labours and writings of two
scholars to whose works I would now invite your attention.
I mean Mr. Eyton and Mr. Seebohm. Mr. Eyton may,
perhaps, fairly be described as the greatest of our Domesday
scholars. He may be said to have saturated himself with the
Record, and to have been virtually the only student who has
really grappled with the Survey and explored its inmost
recesses. Of Mr. Seebohm, as a living student, it is more
difficult to speak freely. I cannot, however, refrain from
describing his 'Village Community in England' as a truly
epoch-marking work, or from recording my belief that it has
made the definition of Domesday measures of land for the first
time possible. Mr. Eyton's labours were of so specialist a
character, and his disposition so retiring, that his Domesday
studies are barely known outside the circle of real students.
The great characteristic of his work was his marvellous and
untiring industry. Of this his note-books, now the property
of the nation, are the still eloquent witnesses. Whether his
judgment or his critical acumen were equal to his devouring
industry, I must be permitted humbly to doubt. Of this,
however, you will later on have opportunities of judging. Of
Mr. Seebohm's work the distinctive note is its thoroughness
and its scientific method. From such study as I have made

of these questions, I must confess that his work gives us a confidence which is not even inspired by that of our leading historians, who have not, as he has done, devoted themselves specially to this particular line of research.

But the peculiar value as to Domesday land measures of the writings of these two eminent students, Mr. Eyton and Mr. Seebohm, is this. They have approached the same subject from different points of view. Domesday was the starting-point of Mr. Eyton; it was the *terminus ad quem* of Mr. Seebohm. Mr. Eyton viewed it from above, from the stand-point of the crown and of its officers; Mr. Seebohm approached it from below, from the standpoint of the holders of land. Except in their virtual and independent agreement that the ploughland, the essential unit, was 120 acres, their conclusions have, at first sight, little in common. Yet it will, I hope, be possible to show that they are really in perfect harmony.

Mr. Eyton's contribution to the study of the subject is thus described by his follower Mr. Waters, who, as some of you are doubtless aware, has trod closely in his footsteps:

What number of acres was contained in the Domesday hide or carucate has been for generations a standing subject of controversy amongst antiquarians, and had come to be regarded as an insoluble problem until the key was discovered by the late Mr. Eyton, the historian of Shropshire. He has proved to demonstration that the difficulty has arisen from the false assumption that the hide or carucate indicated a constant area, whereas they were in fact terms denoting fiscal value rather than areal quantity, so that the enormous variation of acreage in different hides is accounted for by the difference of their contributions to the Exchequer. The fact that the little manor of Hammoon in Dorset, which contained 877 acres, was rated at five hides, while the great manor of Puddletown, extending over 4,126 acres, was assessed at half a hide, can only be explained by the theory that the hide or carucate was a measure of assessment, and not of acreage, and that it denoted a territorial holding of uncertain area, bearing a fixed and uncertain weight of taxation.[1]

[1] Preface to *Survey of Lindsey*, p. 5.

What Mr. Waters can have meant by a fixed and *un-*
certain weight, I cannot profess to explain; but the whole
passage well describes the conclusion arrived at by Mr. Eyton.
Mr. Seebohm, on the contrary, contends that the hide was an
areal measure, and estimates what he terms 'the normal hide'
at '120 acres'; that is to say, in other words, he identifies the
hide with the ploughland, which ploughland, Mr. Eyton admits,
was 120 acres.

It will now be my endeavour to harmonise these apparently
conflicting views. The explanation of their seeming contra-
diction is as follows. The three terms employed by Domesday
for what was substantially the same thing, namely the unit of
assessment, were the hide, the carucate, and the solin, this
last, as you know, being peculiar to Kent. Now, admitting,
as most probably will, after examining the array of evidence
produced by Mr. Seebohm for his conclusions, that he has
proved the existence of a real hide, composed of four real
virgates, each of which normally contained some thirty acres
of arable land, we cannot deny that the real hide was in fact
the equivalent of the ploughland. Independent testimony to
this, indeed, is borne by Henry of Huntingdon, when he writes
thus plainly: ' Hida autem Anglicé vocatur terra unius aratri
cultura sufficiens per annum.' Now this is precisely what Mr.
Eyton denies. His anxiety to establish his main point—in
which, remember, he was perfectly right—namely, that the
hide of Domesday (that is, the *hida ad geldum*) was not a
measure of area, but a unit of geld assessment—led him to
reject the conception of the hide as being ever a definite areal
measure. 'To say, or to suppose,' he observes at the out-
set, 'that in the days of Ethelred, or at the date of Domesday,
or at any other period, the word "hide" indicated a constant
area of 240 acres, or of any specific number of measured acres,
would be most erroneous.' [1]

[1] *Key to Domesday*, p. 3.

Mr. Seebohm, on the contrary, while insisting that the *hide* ' was a real areal measure,' is careful to add that the term hide was used in the Survey exclusively as the ancient unit of assessment.[1]   This much, surely, at any rate is clear: the hide as a unit of assessment—that is, the *hida ad geldum*—was divided, as the *Inquisitio Geldi* proves beyond a shadow of doubt, into four virgates.   Assuming as I do that the *hida ad geldum* was and must have been strictly parallel to the hide as a measure of area, it follows that the latter also must at this time have been divided into four virgates.

That is to say, the assessment of a manor was expressed in terms of the hide, which hide, as Mr. Seebohm has shown, was in truth the ploughland, or *terra ad unam carucam*. In normal cases the manor was assessed at as many hides as it contained ploughlands, and indeed Mr. Eyton himself admitted that ' the individual hide of most manors appears in conjunction with a single plough gang or, as the Dorset Domesday expresses it, with a *terra ad unam carucam.*'[2]   But whereas, as he has further well shown, manors bearing the same amount of ploughland varied in value from other considerations, and whereas royal favour often intervened to lighten their normal liability, we find some assessed at more and some at less than the number of hides which they really contained.   For, you must remember, the hide (or its equivalent) being the sole unit of assessment, the amount added to or deducted from the normal assessment could only be expressed in terms of the hide.   Here, I think, Mr. Eyton's method is, in one sense, distinctly misleading.   His plan of dividing the total area of a county by the number of its hides and then treating the quota as the normal area represented by the hide in that county, has a real value, as in the case of Lincolnshire, in that it affords a rough estimate of the relative prosperity and wealth of different counties and districts.   But it has the

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[1]   *Village Community in England*, p. 34.   [2]   *Key to Domesday*, p. 13.

disadvantage of setting before us a false conception of the hide. Thus, for instance, in his 'Antiquities of Shropshire' (xii. 83) he contends that the Domesday hide of Shropshire probably equalled something more than 240 statute acres. So also in his 'Staffordshire Survey' (p. 21) he asserts that 'the average Staffordshire hide covered as much as 955 acres of such land as the Domesday Commissioners thought worthy of subsequent measurement and registration.' Lastly, in his 'Key to Domesday' (p. 13) we find him stating of Dorset that 'the average of the whole county gives between 230 and 240 acres as the correlatives of the said hide,' and, further (p. 15), that the 'acra ad gheldum taken on the county average of about 240 acres per hide, represented the forty-eighth part of such average—that is, it represented about five modern acres.' Here I say that these expressions give us a false conception of the hide, because I do not believe that when the men of the time thought of the hide as an areal quantity they would think of it as anything but the normal area which the real hide represented. So, to take a modern illustration, if a house worth 400*l.* a year were valued for assessment at 300*l.*, this would not imply that anyone could think of these 300*l.* as representing 300 sums of 320 pence each, or indeed as representing anything else than pounds of 240 pence.

You will now be prepared for the following theory. I hold that we have in the Domesday Survey three equivalent units of assessment—the *hide*, the *carucate*, and the *solin* ; and that these three geld measures were parallel to the corresponding areal measures, namely to the real hide, and to the real carucate, and solin. And now let us see how these measures were divided. I look on this point as of some importance, because we find even the leading authorities speaking of the bovate as the eighth of a hide, or of the virgate as the fourth of a carucate. This produces confusion between two distinct systems. On the one hand, you see, we

have the hide divided into four virgates; on the other, its
equivalent, the carucate, divided into eight bovates. I want
you specially to notice that the divisions were not the same
in number. Thus, to express the eighth of a hide, it was
necessary to speak of it as half a virgate. Conversely, to
express the quarter of a carucate it was necessary to describe
it as two bovates. We can study in the Peterborough *Liber
Niger* the two systems side by side. *Six* manors are there
assessed in terms of the hide and virgate, and *three* in terms
of the carucate and bovate, none in terms of the hide and
bovate, none in terms of the carucate and virgate. The two
systems were radically distinct.

What should be the inference from this distinction ? It
suggests, I think, two problems. First, why do we find, not
one, but two distinct measures ? Secondly, what was respec-
tively the origin of the two systems ?

First, then, why do we find England, always excluding
Kent, partly measured in Domesday by hides, and partly by
carucates ?   On this point Mr. Eyton writes as follows :

There is a doubt whether the 'carucate' was ever used in terms
as of a land-measure by the Pre-conquestual Saxons. Our own
impression is that the term 'carucate' was introduced by the
Normans, and that they intended thereby an estate which in point
of value and capacity was closely analogous to the Saxon hide.[1]

The passage which Mr. Eyton quotes in support of this
conclusion is that which Ellis similarly adduced, namely the
entry in the fief of Striguil :—' In eodem feudo dedit Willelmus
Comes Radulfo de Limesi 4 carucatas terre, *sicut fit in
Normannia*' (i. 162). I do not say that their inference was
wrong, but I do think that Mr. Eyton's rendering ('according
to that estimate of the carucate which obtains in Normandy')
is a straining of the phrase ' sicut fit in Normannia.'   I would

[1] *Key to Domesday*, p. 17.

rather rely for the fact of the introduction of the carucate on the phrase of Ordericus, 'carrucatas quas Angli hidas vocant' (viii. 8); on the subsequent spread of the carucate at the expense of the hide system; on the circumstance (which is not mentioned by Mr. Eyton, though, it strikes me, of great importance) that in Ireland the 'carucate' is the measure of land that we find in the charters of the Norman settlers; and lastly that the carucate is found by a special usage, of which I shall say more anon, in the midst of otherwise hidated counties. But now arises this question. Why should the Normans introduce the 'carucate' as a substitution for the hide over a certain portion of England and not over the rest? Further, as is brought out very forcibly in the subsequent Survey of Lindsey, the division of a county into carucates instead of hides was associated with its division into wapentakes instead of hundreds, and with the subdivision of those wapentakes into miniature hundreds, each containing the fixed number of twelve carucates. Here we have an elaborate system, which we are actually, it would seem, asked to believe was not only introduced *de novo* by the Normans, but was even introduced as the result of caprice on the part of certain of the Domesday Commissioners! Such, at least, is the contention of Mr. Waters, who follows, as I have said, in Mr. Eyton's footsteps, and who writes, in his preface to the 'Survey of Lindsey':

The procedure of the different sets of Commissioners was by no means uniform, and the variation in their method of working will usually enable us to determine from internal evidence what counties were comprised in the same circuit (p. 5).

And he proceeds to explain that certain counties were presumably included in the same circuit, 'as these counties were all surveyed on the same system,' namely that of the wapentake and carucate. It would really seem that Mr. Eyton himself may have similarly confused cause and effect,

and have seen in the division into wapentakes and carucates the independent action of the Commissioners themselves, rather than the recognition of an existing system.

But the subject of the Commissioners and their respective circuits was one which possessed a fascination for Mr. Eyton, and to which, he himself tells us, he devoted 'much study.' He found it, however, almost impossible to add much definite information to that which we already possessed, and in his 'Staffordshire Survey' (p. 5 *note*), he frankly confesses that in his 'Notes on Domesday' he had committed to print some too hasty conclusions on the subject. 'It is little better than a guess,' he writes, 'that Wulstan, Bishop of Worcester, presided over the committee which visited Shropshire, Cheshire, and Staffordshire. It is still more of a guess that Osmund, Bishop of Sarum, previously Chancellor of England, presided over the committee which visited Lincolnshire and its associated counties.'[1] As usual Mr. Eyton here abstains from giving the ground for his 'guess';[2] I can, however, supply it. Mr. Eyton had clearly noted an allusion contained in Heming's Cartulary. The passage runs 'domino Wlstano episcopo existente in legatione regis apud Ceastram.' From the fact that the Domesday Commissioners were termed 'legati regis,' Mr. Eyton (for we can trace the working of his mind) must have inferred that this passage alludes to the presence of Wulfstan at Chester as a Domesday Commissioner for the district. But the context points to an earlier date, and, as it happens, we can fix that date with precision. For on referring to the 'Vita Wlstani' (256) we read : 'In eodem concilio apud Pedridan habito episcopatus ei Cestrensis a Lanfranco Archiepiscopo visitatio commissa est.' Thus Wulfstan did actually visit 'Shropshire, Cheshire, and Staffordshire' (to quote Mr.

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[1] *Domesday Notes*, p. 11.

[2] In the case of Osmund, it may have been suggested by a misapprehension of a passage in the *Clamores* of Lincolnshire (i. 377 *b*).

Eyton's words), not, however, as *he* inferred, in the guise of a Domesday Commissioner, but on an episcopal visitation, some ten years before. Note, by the way, how the 'Vita Wlstani' and the passage in Heming's Cartulary here confirm one another.

The real solution is, of course, to be found, not in the caprice of any Domesday Commissioners, but in the fact that, full two centuries before the date of Domesday, the districts which in the Survey are measured by carucates had been settled by the Danish invaders and apportioned out anew among themselves. In few things is the record of Domesday more valuable than in its authentic witness to that great event which had happened so long before, and in the boundaries it gives us for the district in which the Danes introduced their new system. A map of the carucated district in the Survey would be of great illustrative value, and would show us how closely that district coincided with Danish Northumbria and Danish Mercia.[1]

We may note that Dr. Stubbs, while 'admitting that the wapentake is found only in the Anglian districts,' and that it 'may be a relic of Danish occupation,'[2] ignores, it would seem, the evidence of the carucate, and of the hundreds intermediate between it and the wapentake. The existence of these peculiar Danish hundreds explains what would otherwise be a mystery of the Survey—namely, why Stamford in Lincolnshire, one of the Danish 'Five Boroughs,' should have been assessed at 12½ hundreds ('dedit geldum T.R.E. pro XII hundredis et dimidio '), an assessment at first sight incomprehensible. As each of these Danish hundreds contained but twelve carucates, the total assessment was only equivalent to 150 carucates—that is, to a hundred and a half in the hidated portion of England. Such

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[1] The same map ought to show the extent of the 'wapentake' and of the 'trithing' system.
[2] *Const. Hist.* i. 96.

an assessment would be normal enough when compared with that of similar boroughs, and thus the mystery vanishes. I am not aware that this interesting point has ever been noted before. It may serve to illustrate the diversity of Domesday, and the varying denotation of its formal phraseology, when we find its 'hundred' meaning in one place more than eight times as much as it does in another.

The same illustration is afforded by that special use of the carucate which has been ably discussed by Mr. Eyton in his study on the Dorset Domesday, and which he also discusses in Staffordshire and Somerset. 'The introduction of the carucate,' he writes, 'into the Survey of a county normally divided into hides is one of the curiosities of Domesday.'[1] He describes it as a conceptional and ingeldable hide. It is the carucate, in this special use, which I have already described as very probably introduced by the Normans at the Conquest. My own contribution on this point would be that the 'inland' of Oxfordshire will be found to correspond with the 'carucates' of Dorset.[2] If this conclusion is correct, and I feel pretty confident on the subject, it should confirm the views expressed by Mr. Eyton both of the essentially ingeldable character of the 'carucate' in hidated counties, and also its introduction in that capacity by the Normans.

We have, then, arrived at this conclusion : that the carucate system had been introduced into England by the Norsemen from the east in the ninth century, and that it was again introduced in the eleventh by the Normans, from the south. In each instance it had to contend with the established system of the hide and virgate, and, this being so, we are led to ask whence the latter venerable system can itself have been originally derived.

We thus pass to the second problem, namely the origin of the respective systems. All that I would here insist upon is this : the *carucata* and the *bovata* (like the *solin* and the

[1] *Staffordshire Survey*, p. 24.   [2] See my paper on 'Danegeld.'

jugum) are both of them terms obviously derived from the
team of oxen for the plough. And this ox team, you know,
might be described as the basis of Mr. Seebohm's theory.
But the hide and the virgate are, on the contrary, etymo-
logically unconnected with plough or team. I merely state
and insist upon the fact. I leave it to others to draw con-
clusions.[1]

We are now in a position to move forward. In the three
Domesday measures of land, the hide, the carucate, and the
solin, with their divisions, the virgate, the bovate, and the
jugum, we recognise three names for the same unit of assess-
ment, each of them parallel with real areal measures possess-
ing the same names, which measures again all represent the
same areal unit, viz. the ploughland.

Let us now pass from these to the *terra unius carucæ* or
terra ad unam carucam. The circumstance to which we owe
that Domesday phrase is this. The Normans found on coming
here, as we have seen, three distinct names for the same
measure of land ; they further found that each name possessed
two distinct meanings, according as it was used as an areal
measure or as a unit for assessment. For a national Survey
these complications involved obvious confusion. It was, of
course, possible to distinguish the hide and carucate when
used as units of assessment, as the 'hida *ad geldum*' or the
' carucata *ad geldum*,' and this, indeed, was occasionally done.
But the necessary juxtaposition of the areal measures with
the geld units would still have led to much confusion if they
appeared under the same name. It was therefore determined
to enter the ploughlands—that is, the real areal hides, carucates,
and solins—under the uniform formula, 'terra unius carucæ '
or 'terra ad unam carucam.' Thus the probable confusion

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[1] See my paper on the ' Virgata ' in the *English Historical Review* (vol. ii.).
setting forth a novel explanation of the term, and proving that the hide is the
original unit, of which the virgate is only the subdivision (being essentially its
quarter).

between what may be termed the objective and subjective sense of these three measures would be entirely avoided.[1]

Observe here that this formula of mensuration was parallel to, and formed upon, one of the three existing systems—that, namely, of the carucate and bovate, which, as I have said, there is reason to believe, was the system favoured by the Normans. Thus, the *terra ad unam carucam* was divided into eight portions, each of them a *terra ad unum bovem,* just as the *carucata,* in both its senses, was divided into eight *bovatæ.* Thus, as the *terra ad unam carucam* was, in fact, but another name for the real areal *carucata* (that is, the 'carucata ad arandum '), it is not wonderful that it should have been generally confused with the *carucata* in its sense a unit of assessment (that is, the 'carucata ad geldum'). Thus, even Mr. Eyton, who has devoted so much study to the point, and has insisted on the essential importance of the distinction between the *carucata terræ* and the *terra ad unam carucam,* himself failed, as is shown by a passage in his 'Key to Domesday' (p. 24), to perceive that the relation of the *bovata terræ* to the *terra ad unum bovem* was precisely that of the *carucata terræ* to the *terra ad unam carucam.* Indeed, the entry he there discusses bears definite evidence to the fact. So also one of the few slips in Mr. Seebohm's great work is his assertion that ' the *hide* was used in the Survey exclusively as the ancient unit of assessment, while the actual extent of the manor was described in *carucates'* (p. 84).[2] This is an actual and a serious error, for the carucate, like the hide, was, in the Survey, as we have seen, employed normally as a unit of

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[1] It must however be noted that, in the case of the *carucata* two other formulæ are also found. The three may be thus algebraically expressed :—

     (1) ' Ibi x carucatæ. Terra y carucis.'

     (2) ' Ibi x carucatæ quas y ' (or ' et y ') carucæ possunt arare.'

     (3) ' Ibi x carucatæ et ' (or ' in quibus ') 'y carucæ possunt esse.'

In all three of these formulæ ' carucatæ ' and ' carucatæ terræ ' are used indifferently.

[2] Cf. p. 293.

assessment, while the 'actual extent' was described in terms of the *terra ad unam carucam.*

But there are few more difficult problems in Domesday than the exact meaning of the term 'carucata' and its relation to the normal ploughland. As with other terms employed in Domesday, there is the perplexing fact that 'carucata' may mean one thing in one place and one in another. It is quite certain that Domesday recognises the distinction between the two senses in which 'carucata' is employed, since 'carucata terræ ad geldum regis' and 'carucata terræ ad arandum' occur in the record in close conjunction (i. 280 [1]). It may further be asserted that the latter term equates the 'terra uni carucæ.' For instead of the usual formula 'terra totidem carucis,' we get on folio 276 the entry 'Henricus nunc [habet] IIII car[ucatas] ad geldum et totidem car[ucatas] ad arandum.' Moreover, on collating the *Inquisitio Eliensis* (p. 528) with the Exchequer Domesday (i. 204), we get these important parallel expressions in the case of the Abbey's Huntingdonshire manors :

<table>
<tr><td>DOMESDAY.</td><td>INQ. ELIENSIS.</td></tr>
<tr><td>In Colne habet Abbas de Ely VI hidas ad geldum. *Terra* VI *carucis.*</td><td>In Colne . . . . VI h[idæ] ad geldum et VI *c[arucatæ] ad arandum.*</td></tr>
<tr><td>In Bluntesham . . . . VI hidas et dimidiam ad geldum. *Terra* VIII *carucis* . . . . In dominio *terra* II *carucis.* Ibi nunc in dominio II carucæ.</td><td>Bluntesham . . . . unum manerium de VI hidis et dimidia ad geldum. *Ad arandum* VIII *c[arucatæ].* . . . Ipse habet II *c[arucatas]* exceptis predictis hidis. . . . Nunc ipse II carucas.</td></tr>
<tr><td>In Sumersham . . . . VIII hidas ad geldum. *Terra* XII *carucis.* Et, exceptis his hidis, in dominio *terra* II *carucis.* Ibi nunc in dominio II carucæ.</td><td>Sumersham . . . . 'VIII hidis ad geldum. *Ad arandum* XII *c[arucatæ].* . . . Ipse abbas II *c[arucatas]* exceptis predictis hidis. Symon abbas invenit II c[arucas].</td></tr>
<tr><td>In Spaldvice . . . . XV hidas ad geldum. *Terra* XV *carucis.*</td><td>Spalduuic. . . . Manerium de XV hidis ad geldum . . . . et XV *carucæ possunt arare* terram istam.</td></tr>
</table>

The comparison of these formulæ is, I consider, most instructive. We have here the 'terra uni carucæ,' equating the 'carucata ad arandum,' and even the 'carucata' unqualified. The difficulty, then, is reduced to this. The 'carucata ad geldum' and 'carucata ad arandum' speak clearly for themselves, but the unqualified 'carucata' (or 'carucata terræ') may mean the ploughland in one place, and the unit of assessment in another. In such entries, for instance, as 'XXV carucatæ quas possunt arare XIIII carucæ' (i. 299 *b*, 305 *b*), the 'carucata' is certainly a geld measure, but in Leicestershire it seems, on the contrary, to be used (though not invariably) to denote the ploughland. But then, the *formulæ* in that county appear to be very peculiar. We even find a few (a very few) instances of such singular *formulæ* as these : 'Ibi est I hida et IIII ta pars I hidæ. Ibi sunt XXII carucatæ terræ' (i. 231). 'Ibi est I hida et VIta pars I hidæ. Ibi fuerunt XXIII car[ucæ ?] T.R.E.' (i. 231 *b*). 'Ibi sunt IIe partes unius hidæ ; terra est VI carucis' (*Ib.*) 'Ogerus Brito tenet de rege II partes unius hidæ idest XII carucatas terræ' (i. 236). These four, it will be seen, are all slightly different. But there can be no question that the 'carucata terræ' here represents the 'terra uni carucæ,' the ploughland. To Mr. Eyton, who strenuously insisted on the essential distinction between the 'carucata' and the 'terra uni carucæ,' such a passage, for instance, as the fourth of these, proved—as he confessed in his 'Staffordshire Survey'—a stumbling-block. But this was because he did not allow for the two distinct meanings which 'carucata' could bear in the Survey. It is probable, I think, that the 'carucata terræ,' which occasionally occurs in hidated districts, was, contrary to his opinion, the 'carucata ad arandum,' not the 'carucata ad geldum.'

A theory of great interest, and probably of entire novelty, is advanced by Canon Isaac Taylor with much ingenuity and erudition. He contends that the distinction between two-

field and three-field manors is the key to the whole system. His theory is thus summed up :

In the Domesday Survey of the northern shires two phrases occur in the account of almost every manor ; these are the *carucata ad geldum*, the 'geldable carucate,' which was the fiscal unit for purposes of taxation ; and the *terra ad unam carucam*, the 'arable carucate,' which was the unit for agricultural purposes. . . . In three-field manors the Domesday *carucata ad geldum* was normally sixty acres, the land tilled in one field in one year by one plough, while *terra ad unam carucam* was 120 acres, the land tilled in both fields in one year by one plough, and the whole carucate including fallow was 180 acres.   In two-field manors, both the *carucata ad geldum* and the *terra ad unam carucam* were 80 acres, and the whole carucate, including fallow, 160 acres, by the reckoning locally used, either the Norman hundred of five score, or the English hundred of six score.[1]

This theory is no doubt right—as far as it goes.   It explains beautifully a relation between the geldable carucate and the ploughland which is so frequent in Yorkshire as to be, perhaps, the rule.   It will be observed, however, that such a theory virtually converts the unit of assessment into an areal measure, and implies that the relation between the 'carucata ad geldum' and the ploughland was constant.   This is, at first sight, contrary to the view on which I have insisted throughout—namely, that the unit of assessment must on no account be confused with the areal measure.   Yet the two views are quite consistent.   Just as, according to Canon Taylor, a two-field manor ought to be assessed at as many *carucatæ ad geldum* as it contained *terræ ad unam carucam*, so we find, in the south of England, plenty of manors assessed

[1] *The Standard*, November 1, 1886.   This may perhaps be a fitting place for calling attention to the grant by the Count of Meulan (*Rot. Scacc. Norm.* I. clv.) to the Abbey of Jumièges, in 1183, of 'a carucate of land, viz. sixty acres of arable land, with the wood upon it, measured with a perch of 25 feet' [*i.e.* the forest perch].   Recent research is said to show that the ploughlands introduced by the Crusaders into Palestine were of eighty acres.   These two measurements would point respectively to the three-field and two-field system.

at as many *hidæ* [*ad geldum*] as they contained *terræ ad unam carucam.* But in the south the number of such manors was being continually diminished by the working of the assessment system, till the great majority were assessed at a number of hides which bore no relation to the number of their ploughlands, being sometimes much above and sometimes much below it. Now it must be seen that Canon Taylor's theory simply ignores the operation of such a process ; it is not concerned with it ; it only deals with the state of things before that process has come into play. Of course, as soon as it came into play, it would make havoc of any fixed relation between the *carucata ad geldum* and the *terra ad unam carucam.*

If at the time when the Survey was taken that fixed relation between the ploughland and the united geld assessment was as much the rule in the north as it was the exception in the south, we are led surely to a conclusion of historical and political importance, viz. that the principle of assessment which had been acted on from the first in the south, had never, or hardly ever, come into operation in the north, where the assessment was almost solely regulated by the number of ploughlands, independent of all considerations of value or of favour.

But if in Yorkshire, in the East Riding of which Canon Taylor's observations were made, we may accept this to have been the case, we cannot admit it as applicable to all 'the northern shires,' or, to speak more accurately, the carucated district. In Nottinghamshire, for instance, the relation of the *carucata ad geldum* to the *terra uni carucæ* is quite different and would seem rather to resemble that of the hide to the ploughland. Here, then, the southern principle of assessment must already have come into operation. Canon Taylor's theory requires that the *carucata ad geldum* should stand to the *terra ad unam carucam* in the proportion of 1 to 1 or 2 to 1, or some-

thing between the two, where the systems are mixed. But in
Nottinghamshire we find the proportion to be ' the other way
up.' The former stands to the latter in the proportion of 2 to 3,
1 to 2, 3 to 8, 1 to 3, 1 to 4, 1 to 5, and even 1 to 8.[1] In Derby-
shire also, though less marked, we find cases of 2 to 3, 1 to 2,
&c. In that portion of Rutland which was surveyed with
Nottinghamshire we obtain figures which, on more than one
ground, are of singular interest and completeness. We learn
that this district was divided into two wapentakes, and that
each wapentake contained 48 ploughlands. (' Terra uni carucæ,'
or [' in qua] una caruca esse potest.') But as one of these
wapentakes comprised two hundreds, and the other only one,
and as each of these hundreds, according to the rule (*vide
supra*) contained 12 ' carucatæ ad geldum,' it followed that
these twelve geld-carucates represented 24 ploughlands in one
wapentake and 48 in the other, thus respectively standing in
the proportion of 1 to 2 and 1 to 4.

All this is but further proof of the urgent need for local
research. When the whole carucated district has been care-
fully covered by such research, we may obtain results of
great interest, and find it possible to trace with exactitude
the principle of assessment adopted in the various and (I
think we may find) widely differing sub-districts.

As to confusion between the ' caruca ' and ' carucata,' it
is true that, as Mr. Seebohm complains, ' unfortunately the
same contracted form serves in the Survey for both *carucata*
and *caruca.*' Yet there should, to the modern student, be
little danger of confusion ; sometimes, of course, there may
be a real doubt, but such cases are comparatively rare. As a
rule there can be no question as to which term is meant.
Thus, for instance, we can say positively that in his rendering
of the famous passage heading the *Inquisitio Eliensis*, Dr.
Stubbs (doubtless following Ellis) is in error both in his ' Select

[1] See, for instance, i. 281 *b* 282 *b*, &c.

Charters' and in his 'Constitutional History,' when he extends 'quot carr̄. in dominio' as 'quot carrucatæ.' So too, to take a different instance, Mr. Hunt, in his excellent little 'Norman Britain,' gives us *caruca* as the equivalent, not of the plough, but of the 'ploughland' (p. 96).

Another pitfall for the older commentators was the confusion between the oxgang and the ploughgang (*i.e.* between the bovate and the carucate). Thus Ellis wrote that 'the *Bovata*, or oxgang, was originally as much as an *ox-team* could plough in a year' (i. 156). I need hardly say that Mr. Seebohm's researches have made such an error impossible for the future.[1]

Let us now look at the real ploughland, the *terra ad unam carucam* of Domesday. Mr. Eyton rightly observes that 'this, if not quite a definite expression, is intended in Domesday to denote an area of arable land nearly, if not always, constant.'[2] He proceeds to discuss what that area was, and arriving at the conclusion that 'the ordinary measure of the ploughgang was 120 acres,' adds: 'We cannot find a single instance subversive of such a doctrine, while, if we adopt any hypothesis differing by ten acres in either direction, a similar examination of instances will soon convince us that our basis is unsound.'[3] Now compare this with Mr. Seebohm's conclusion, arrived at so carefully and independently, that the area of the normal 'hide' (used as an areal measure) was 120 acres, and with the leaning of the majority of commentators, especially old Agard himself, to that same figure, and I think you will admit that we have a strong presumption in favour of the correctness of this conclusion.

But as a preliminary step, it is necessary to insist on a

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[1] So at least I thought when the above was written. Yet this error has been since solemnly brought forward by the *Athenæum* as a fact fatal to the views held by Canon Taylor, whom this illustration of the persistence of error must have amused no less than surprised.

[2] *Key to Domesday*, p. 23.   [3] *Ibid.* p. 24.

postulate which would seem to be imperfectly grasped.   This
is the principle of the assessment 'norm.'   There has been,
and is, much difference of opinion on the subject of the
Domesday plough-team (*caruca*) ; but whether in practice the
number of oxen in that team differed or not, it is absolutely
certain, in my opinion, that the ' caruca ' *of Domesday* stands
for a team of *eight* oxen, and that the *terra ad unam carucam*
was the ploughland for such team of *eight* oxen.   For it is
beyond dispute that such *terra* is invariably composed, in
Domesday, of eight parts, each of them a *terra ad unum
bovem.*   Now for purposes of uniformity of Survey, in Domes-
day, it was essential that the term 'caruca' should have the
same denotation throughout, and that denotation would
obviously be based on the *normal* plough-team of the time,
such *normal* plough-team, as Mr. Seebohm holds, being that
team of eight oxen on which his theory is essentially based.
The only point on which, here, I differ from Mr. Seebohm is
on his belief that the 'caruca' in Domesday was applied
indifferently to 'the typical manorial plough-team of eight
oxen' and to 'the plough-team of the villeins,' which latter,
he holds, can hardly have been composed of ' more than four
oxen.'[1]   I, on the contrary, cannot admit that the ' caruca ' of
Domesday can ever have varied.   Surely this is conclusively
proved by the monotonously regular Domesday formula :
' Terra *x* carucis.   Ibi *x—a* carucæ.   Et adhuc *a* possunt esse.'
It will be seen that such a formula could only apply to the
' caruca ' as a fixed quantity ; and that, moreover, it involves
the axiom of ' one plough-team to every ploughland.'[2]

In the same way, where land-measures are concerned, we
must remember that, however they may have varied in prac-
tice, it must have been necessary, for purposes of assessment,

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[1] *Village Community in England*, pp. 85, 86.

[2] At the same time, though this is indisputable, the point is one of some
difficulty.

to assume some uniform scale, and in this way, it may be added, the assessment system would lead to a greater uniformity in practice. Thus, taking the unit of assessment, whether the hide, the carucate, or the solin, it is obvious that its divisions, if recognised as geld-measures, must invariably have borne a fixed proportion to that unit. With the hide, for instance, its subdivisions, the geld-virgate and the geld-acre, must have been fixed fractions of the hide, or their assessment would have been impossible. That is to say, the geld-hide must have contained a fixed number of geld-virgates and geld-acres. But, here again, that number would be determined by the *normal* number in the areal hide. Hence the importance of investigating the former as an authoritative clue to the latter.

This doctrine that the hide (or carucate or solin) must have always contained, as a geld-measure, the same number of acres, is necessarily opposed to Canon Taylor's theory that the geldable carucate contained either 60 or 80 acres, according as the manor assessed was cultivated on the two-field or three-field system. Unfortunately, the question is further complicated by variations in the length of the rod or perch, and consequently in the size of the acre. Thus we have carucates of 60 acres which are specially mentioned to have been measured by the rod of 24 or 25 feet (described as 'our' royal rod by Richard I. and Henry III.) ;[1] so that these 60 customary acres might amount to some 120 acres measured by the short rod. All which shows us how cautious we should be in laying down for universal application any hard and fast rule.

Of all the various views that have been held on this subject, I need only allude to those of Kemble, because his great eminence as an authority on the Anglo-Saxon state renders it impossible to ignore them. 'The value of a hide,' he wrote

[1] Hale's *Register of Worcester Priory*, p. xlv; Ellis's *Introduction*, i. 151 ; *Ninth Report Hist. MSS.* App. I. p. 30. See also *supra*, p. 205, *note.*

'is 40 Norman acres.' He further held that it was equal to 30 Saxon acres, or rather to 30 of their 'large acres,' each of which he divided into four *quarentenæ* or small acres, thus assigning 120 of these small or quarter acres to the hide. Further, he held that 'as the Anglo-Saxon half-score was equivalent to the Norman dozen, 40 Norman acres would represent 33⅓ English acres,' which does not, he argues rather weakly, 'differ very widely from the calculation given above' (i.e. 30 acres).[1] This curious view, which he elaborated at length, was ably criticised by Mr. Pearson in an Appendix to his 'England in the Middle Ages.' Mr. Freeman appears with much judgment to have refrained from discussing this knotty point, but our greatest authority of all—I mean of course Dr. Stubbs—has devoted a footnote to what, with justice, he describes as this 'vexed question,' and in it, with great caution, discusses Kemble's view, urging that 'although his argument obviates many difficulties, it opens the way for many more.' He further suggests as 'possible that some of the inconsistencies in the use of these words may arise from their being used to express the whole share of one man in all the fields of his village. Thirty hides in a system of common cultivation would represent such an allotment in each of the cultivated areas.'[2]

I have pointed out to Dr. Stubbs, that, when he thus wrote, what he meant to say was thirty *acres*, not thirty hides. But, in any case, this suggestion will not apply to Kemble, for he explained that in his reckoning of 30 acres he allowed 10 to each course. His error is, I think, rather to be traced to the fact that the *hiwisce*, or family holding, from which the word 'hide' is said to be derived, was sometimes, it would seem, applied to the yardland of 30 acres, and sometimes to the full ploughland composed of four such yardlands.[3]

[1] *Saxons in England* (ed. Birch), i. 101.   [2] *Const. Hist.* i. 74, *note.*
[3] Compare Seebohm's *Village Community*, pp. 162, 395.

I should mention, perhaps, that although in strictness the areal hide represented a ploughland, yet that ploughland connoted the enjoyment of certain *appendicia*—meadow, pasture, wood, and so forth—which might sometimes, I presume, be associated with the ploughland under the name 'hide.'

Now, as to the number of acres contained in the areal hide, if we could prove that the subjective hide, the hide as a unit of geld assessment, contained 120 acres, we should obviously have the strongest presumption that the corresponding areal hide contained the same number. I have worked through the *Inquisitio Geldi* with this special object, but found to my disappointment that the odd acres which paid geld on that occasion did not pay at a uniform rate, some paying twice as much as others. This test, therefore, fails us, and all that we can say is that for the purpose of collecting the geld, the acre, if a geldable quantity, as it was, must have borne a fixed proportion to the unit of assessment with the hide ; and if that proportion was, as I think, one to a hundred and twenty, then at the normal geld-rate of two shillings on the hide, the holder of the virgate would have paid sixpence, and of the half-virgate threepence, while the typical cottier's holding of five acres would have paid one penny. I must explain, however, that we are only justified as yet in treating the geld as assessed on geld-hides and geld-virgates, not on the corresponding areal measure, for this involves a wide question on which I have made elaborate calculations, but on which I do not feel justified at present in speaking with the confidence I could wish. In any case you will see that the geld and the hide have a certain numerical relation, and I am, I must confess, a little surprised that Mr. Seebohm should connect the acreage of the hide with the comparatively late scutage, urging that 'in choosing the acreage of the standard hide and virgate, a number of

acres was probably assumed corresponding with the monetary system, so that the number of pence in the *scutum* should correspond with the number of acres assessed to its payment' (p. 39). Surely this is a strange inversion of the chronological sequence of events.

But I now come to a theory of Mr. Eyton's which, I confess, greatly puzzles me. If what I have termed the objective hide (and what he terms the ploughland) was reckoned, for purposes of calculation, at 120 acres, that is four virgates of 30 acres each, then the subjective (or geld) hide would naturally be similarly reckoned as containing four virgates, or 120 acres. That it did contain four virgates is happily quite certain. Mr. Eyton, however, asserts that it contained, not 120, but 48 acres. The presumption is obviously so strong against so improbable a supposition, that it would need the clearest evidence to establish its correctness. To revert to an illustration I have already employed, it is like assuming that because the assessed value of a house differs from its real value, therefore every pound of the assessed value, though duly containing 20 shillings, would only contain in all 96 pence. But Mr. Eyton had, unluckily, a provoking habit of occasionally omitting his evidence, and thus rendering it impossible to judge of the correctness of his induction. So here, he merely writes: ' In Dorset the gheld-hide was subdivided into four virgates, and each virgate into 12 acres.'[1] All we can do, then, is carefully to examine the instance quoted by himself in illustration of his own contention. This is the manor of Mappowder, in Dorset, of which Domesday says that T.R.E. 'geldabat pro III virgatis et dimidia et VII acris terre.' 'Here,' says Mr. Eyton, 'the gheld quantities are clumsily but intelligibly expressed. The geldability of the estate was that of one gheld-hide and one gheld-acre, or more concisely still, that of 49 gheld-acres.'[2] But if so, why does

[1] *Key to Domesday*, p. 14.   [2] *Ibid.* p. 16.

214 NOTES ON DOMESDAY MEASURES OF LAND

not Domesday say so? Why does it not say, after its wont, that the assessment is that of 1 hide and 1 acre? Mr. Eyton gets over this difficulty by charging the Survey with clumsiness. Now it would be most unjust to that scholarly writer to quote, in his case, the old adage that 'bad workmen quarrel with their tools'; but, for my part, I confess I do not believe in finding fault with your record when you can't make it square with your theories.

Let me give you an instance in point. We read, in Domesday, of the borough of Stafford:

Tempore regis E. reddebat burgum de Stadford de omnibus consuetudinibus IX libras denariorum. Duæ partes erant regis, tercia comitis. Modo habet rex W. de redditibus burgi VII libras inter suam partem et comitis. Medietatem partis propriæ regis habet Robertus dono regis ut dicit (1. 246).

On this Mr. Eyton thus comments in his work on the Staffordshire Domesday:

Other evidence of the recent disorganisation of Staffordshire consists in what Domesday says about the county town and castle of Stafford.

In King Edward's time the burgage rents and customs had amounted to 9*l.* per annum, whereof 6*l.* went to the king, 3*l.* to the Earl (of Mercia). At the date of Domesday the gross income was 7*l.* instead of 9*l.* The whole went to the king, who was both king and earl. The half of his share as king, which half I take to have been 2*l.* 6*s.* 8*d.*, was now receivable by Robert (de Stafford) who alleged a crown grant thereof.

The reason of this fall in the annual revenue of the burgh of Stafford evidently was, that out of 179 burgage-houses which composed the town, 51 lay waste (*vastæ*) (p. 19; cf. p. 51).

The interest of this conclusion, if correct, lies in the reduction it implies in the *firma* due from Stafford. Ellis must have arrived at the same conclusion, for he tells us that 'the rents from the customary payments of the town had diminished.'[1] But if so, this was a remarkable exception, for,

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[1] *Introduction*, ii. 487.

impoverished or not, all other boroughs had to pay more than, or at least as much as, they had paid under the Confessor.   I contend, however, that it was not so.   Later on in his work Mr. Eyton admits that

as an item in Robert de Stafford's fief Domesday inserts the following :

'In Burgo de Stafford habet Robertus LXX solidos de medietate partis Regis.'

This I conclude to have been an erroneous statement ; at all events it is opposed to the statement above extracted from the Survey of the burgh of Stafford. It gives to Robert de Stafford half of the king's whole receipts, whether as king or earl, which whole receipts were 7*l.*—that is, it gives the Baron 3*l.* 10*s.* per annum. But it is clear from the previous statement that he was only entitled to 2*l.* 6*s.* 8*d.* (p. 95).

But I deny that the great Survey here is either erroneous or contradictory.   Its meaning is that the render of Stafford had been raised from 9*l.* to 10*l.* 10*s.*, that of this the king's two-thirds was 7*l.* and the earl's third 3*l.* 10*s.*, and that the king having granted to Robert de Stafford half of his own share, namely of the 7*l.* (that is, 3*l.* 10*s.*, precisely as Domesday states), there remained to the king ' inter suam partem et comitis [partem] ' just 7*l.*, which is the sum given in the Survey.   There is, therefore, no discrepancy whatever ; only a misunderstanding on Mr. Eyton's part.   And this was due to the peculiarity of the case in the king giving Robert, not the earl's third, but (which came to the same thing) a half of his own two-thirds.   His doing so is ingeniously, and no doubt rightly, thus explained by Mr. Eyton :

In an arithmetical point of view it was immaterial whether the king made over half his own share of this revenue, or the whole of the earl's share : but William, I opine, was careful to give to Robert de Stafford nothing that savoured of earldom (p. 19, *note*).

But to return : I object, as I have said, to theories being defended by charging the Survey with clumsiness or error

where its evidence is against them.   In the passage quoted
from the Dorset Domesday, the Survey is only clumsy if
Mr. Eyton's theory is right.   If, on the contrary, as I am in-
clined to hold, the geld virgate was of thirty acres, then three
virgates and a half plus seven acres would be the natural
way of expressing a hundred and twelve acres.   So with
Essex.   There we have such a case as this.   Alresford was
held ' pro II hidis *et pro* L *acris terre.'*   On my hypothesis this
means for two hides and fifty acres, that is for two hides and
five-tenths.   But on Mr. Eyton's, it would be a 'clumsy'
expression for three hides and two acres.   Again, on the fief
of Randulf Peverel, we find manors occurring which 'defend-
unt se' for 9 hides + 82 acres, for two hides and a half + 30
acres (ii. *72 a*), for half a hide and 30 acres, for half a hide and
24 acres (ii. *75 a*)—which last, according to Mr. Eyton, would
mean exactly one hide.   All these appear to me to be
entirely at variance with his theory.   I had hoped, as I said,
that the geld-rolls of 1084 might decide the point conclu-
sively one way or the other, but a laborious search has com-
pelled me to believe that the odd acres contributed at so
uncertain a rate as to leave their relation to the virgate and
the hide in as much uncertainty as ever.

I must not leave this point without alluding to the
peculiar use, in Cornwall, of the acre as a unit of geld-
measurement.   Mr. Eyton appeals to this usage when enun-
ciating the view discussed above ;[1] but when we find a manor,
as in these cases, assessed in terms of the acre, nay when we
find manors assessed not merely at one acre, but actually at
half an acre, you will, I think, agree with me that there must
be something peculiar in these 'acres.'   For even on Mr.
Eyton's own hypothesis, an assessed value of half an acre
would not represent more than a ninety-sixth of a hide,
which, at the normal geld-rate of 2*s.*, would involve the

[1] *Key to Domesday,* p. 16.

liability of this manor to a total payment for a year's geld of exactly one farthing.   Surely we have here a *reductio ad absurdum*.   It should, perhaps, be added that in these cases we have ' ager ' occasionally instead of ' acre.'

If I am right in rejecting this hypothesis on the geld-acre, it follows that Mr. Eyton's assumption that in Lincoln-shire it equalled five statute acres, involved three errors. First, like his similar statement in Dorset, it rests on his fatal system of average, which is absolutely misleading for indi-vidual cases.   Secondly, it does not, for Lincolnshire even, rest on an average, for in two of the three divisions of the county the averages were widely different from this.   Thirdly, it is based on the erroneous estimate of twelve acres to the geld-virgate.

Let us now take a test case and see how the estimate of 120 acres for the ploughland (or ' terra ad unam carucam ') works out in practice.   I select the now familiar name of Kensington, because that manor happens to afford a pecu-liarly clear and simple case.   The Domesday entry is as follows :

Albericus de uer tenet de episcopo Constantiensi Chenesit[am]. Pro x hidis se defendit.   Terra est x carucis.   Ibi in dominio sunt IIII carucæ et villani habent v carucas et VI potest fieri.[1]

In totis valentiis valet x libras. . . . T.R.E. x libras (I. 130 *b*, 2).

Here, as Mr. Eyton would say, everything is normal. Assessment, ten hides ; extent, ten ploughlands ; value, ten pounds.   Four ploughlands are in demesne, six in villen-age.   Now reckoning the ploughland at 120 acres, this would give us, for the Domesday manor, 1,200 acres of arable, of which 480 in demesne and 720 in villenage.   Passing from 1086 to 1264, we find that, in the latter year, on the death of

[1] It is clear from an examination of the manors on this page that the above ' VI ' ought to be ' VI ta ' (i.e. sexta) ' a sixth.' (Compare *Inquisitio Eliensis*, p. 507 [1].)

Hugh de Ver (Earl of Oxford) to whom the manor had descended from Aubrey de Ver, an *Inq. p.m.* was taken, and the extent of the manor ascertained to be (1) In demesne, 570 acres of arable of 4*d.* an acre ; (2) In villenage, 21 virgates, at the rent of 59*l.* 4½*d.* Now 21 virgates of 30 acres of arable each (on the hypothesis of 120 to the ploughland) would amount to 630 acres, which with the above 570 acres in demesne, would give us *exactly* the 1,200 acres of arable that we deduced from the Domesday entry. The only change that will have taken place in those 178 years is the taking of three virgates (90 acres) out of villenage into demesne.

It is, of course, always dangerous to argue from a single case, but the above figures are certainly remarkable. They do not, however, affect or exclude the hypothesis that the sixty acres of fallow (under the three-field system) were never reckoned in the 'ploughland.'

Turning now to a different subject, I am particularly anxious to call your attention to the question of the acre as applied to meadow-land. When studying the Domesday Survey of Colchester, I noted in the 'Antiquary' that there was one point which I was utterly unable to explain. It was this. At Colchester, as in most similar localities, we find a King's Meadow, so-called, observe, not because the king owned it, but because he possessed in it a large proportion of the 'doles.' The name remained, but its meaning was forgotten. Now in this meadow were ten 'acres,' so-called, which I had identified with the ten acres of meadow entered as the king's in Domesday, which were always attached to the king's castle, and which have passed with that castle to my family. I found them described in our deeds as 'the ten acres in King's Meadow,' but on examining them I found that as a matter of fact they lay in three strips, the six-acre, the three-acre, and the acre, the whole only amounting to 7a. 2r. 36p., and the average for the acre in each strip varying from ·75 to

·80, that is from 3 to 3½ roods.   I could get no further light
on this, till on reading Mr. Palmer's admirable treatise on
'Ancient Tenures of Land in the Marches of North Wales,' I
found that his researches led him to the conclusion that 'the
normal doles of the old common meadows' in his district are
represented by an area of 'a little over three statute roods.'
The resemblance was curiously complete.   Mr. Palmer pro-
ceeds to note that in common parlance a meadow is still
spoken of both there and in Cheshire as containing so many
'days' math,' and inclines to the conclusion that these normal
doles were really 'days' maths' (a statement for which there
is record evidence), and represented each the amount that a
man could mow in a day.   Now let us turn from Mr. Palmer
to Palgrave.   That writer tells us of East Friesland, that 'the
district known by the name of the Theel-land, contains about
2,000 *day-maths*, a measure which was anciently known in
this country, being still retained in the County Palatine of
Chester.' [1]

We may fairly, then, assume that these Domesday acres
in the King's Mead at Colchester were not really acres at all
but days' maths, and if so there, elsewhere also, as for instance
at Canterbury, where the eight Domesday acres of meadow
are said, I believe, by Larking to have been situate in the
King's Mead.   This would at once explain the passage in
the Battle Abbey Register, 'triginta acras prati ad men-
suram Normanniæ dimensas,' implying that the English
meadow acre represented a different acre, in fact the 'day's
math.'   Further, Mr. Palmei has well explained that seeming
doles of a statute acre were the result of a process by which
all the meadow was in some cases thrown together and doled
out afresh on the real acre system.   We have traces, I think,
of some such process in a record of about the beginning of
the thirteenth century, contained in Madox's 'Formularium'

[1] *English Commonwealth*, i. 77.

(p. 250), which is valuable for its evidence on the village
community, and which speaks of 'octo perticatas prati . . .
quamlibet percatam de sedecim pedibus.' The special men-
tion of the length of the perch would seem to point to a fresh
division on a new system of measurement.

The survival of so archaic a measurement as the 'day-
math' at the date of the Domesday Survey will not seem
strange when we learn that in Essex (at Runwell) we find at
least as late as the middle of the thirteenth century mention
of 'daywerkes' of land, that I have myself examined original
charters relating to manors in the same county, and dealing
with 'opera diurna vocata daywerkes,' and that in Warwick-
shire, startling though the fact may seem, we actually find
mention of 'acres or dayes workes of arrable lande' as late
as the reign of Charles II.

This may lead us to glance for a moment at the witness
of Domesday to 'the open field.' The first point to which I
would call attention is the occasional use in the Survey of
the 'acre' not as an areal, but as a lineal measure. Students
of our early land system will, of course, understand at once
that such a usage is the direct consequence of the typical
'acre-strip' that characterised the open field. Just as the
base of the areal 'rood' was the lineal 'rood' or 'rod,' so the
base of the areal acre (composed of four such rood-strips
lying side by side) was the lineal acre, i.e. four rods. But
the measure which we find in Domesday in conjunction with
the lineal acre is the 'quarentena.' Now the quarentena is
the 'furlong,' that is, the *side* of the areal acre, just as the
lineal 'acre' is its *base*. Thus the use of these two measures
brings before us with vivid force the sight of those acre-strips
which must have met on every side the eyes of the Domesday
Commissioners. As Mr. Eyton observes in his Dorset
Domesday (pp. 25–28), these two measures were used for
estimating woodland and pasture. But it may be pointed

out that such phrases as 'Silva una quarentina et VIII acræ lata' (79 *b*, 1) cannot be taken as of rigid precision, although Mr. Eyton does so.   For it is obvious that the woodland was not distributed over the country in a series of rectangular blocks.   My own impression is that the *legati* used the divisions of the open field as a kind of rough-and-ready reckoner with which to estimate by eye the dimensions of the adjacent woodland.

It is, indeed, said that the Domesday Survey nowhere alludes to the open field ; yet from behind the veil of the great Record there peep, irrepressible, ever and anon the familiar features of the village community.   We have clear glimpses, under their actual names, of its three essential land divisions—the *campi*, or great open fields,[1] the *culturæ* or shots, into which those fields were subdivided,[2] and even the acre-strips themselves, the acre-strips which had to be ploughed and the acre-strips which had to be sown.[3]   It might even be urged, though I do not wish to press the point unduly, that the phrase, 'Ibi 1 hida . . . jacet inter terram regis *particulatim*' (i. 156 *b*) points, if 'particulatim' should be rendered 'piecemeal,' to the scattering of this 'hide' over the open fields.

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[1] 'In campis Lincolliæ extra civitatem' (i. 336).   Compare the 'campi' (or open fields) of Nottingham mentioned throughout the Records of the Borough of Nottingham, also the 'Boroughfields' at Colchester &c. &c.

[2] 'Una cultura terræ' (i 34, 375 *b*).   On this term, see a remarkable early charter (1150–1159) in the Burton Cartulary (p. 37), where we find this expression : 'II culturas terræ una de VI *landis* et aliam de VII.'   I note this as a most interesting case of the early occurrence of our term 'lands' (in a Latinised form), of which term Mr. Atkinson (in his 'Notes on Common Field Names ') writes: 'the universal term for the divisions of the field created by regular ploughing is *lands*' (*Antiquary*, xiv. 117).   The same writer speaks of '*cultura* or *culture*' being a name of continual occurrence in old deeds of a group of such acres (*Ibid.* p. 74).   I merely quote these passages as confirming my statements.

[3] 'XLI acras de aratura' (ii. 2 *b*); 'VII acras seminatas' (i. 267 *b*) ; 'unam acram seminatam ' (ii. 78 *b*) ; 'villani arant et seminant de proprio semine quater XX acras frumenti et totidem ad avenas preter IX acras . . . villani arabant CXL acras terræ domini et seminabant de proprio semine frumenti ' (i. 179 *b*).   See also for villein services :—' Hi Radchenistri arabant et hericiabant ad curiam domini ' (i. 163).

Lastly, we have the three typical services of the community which dwelt within this shell (to adapt Mr. Seebohm's simile), the *opus* or week-work,[1] the *precariæ* or bene-work,[2] and the *gablum* or gafol,[3] all of them distinctly entered.

We are reminded also that even dwellers in towns were connected with the open-field system, its dues and its villein services. At Nottingham the burgesses had paid for their land partly in *gafol* and partly in labour;[4] at Hereford the owner of every burgage had yearly to reap the king's crops and make the king's hay;[5] at Steyning he had to perform all the villein services;[6] and at Colchester almost every burgess held a strip, large or small, in the fields that lay about the walls.

In dealing with the evidence of Domesday on the village community in England, Mr. Seebohm commits himself to one statement from which I must reluctantly differ.   Urging that it is 'clear' from the witness of Domesday 'that at the date of the Survey the holdings of the villein were generally hides, half-hides, virgates, and half-virgates,' and that the virgate or yard-land was the normal holding (p. 94), he writes, of 'the Fen country'—

the holdings in this district seem to have been peculiar. Instead of being each of a virgate, or each of a half-virgate, they are each of so many acres, as was found to be the case in some districts of Cambridgeshire in the Hundred Rolls. The Fen district seems to have had its own local peculiarities, both in the 11th and in the

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[1] 'xii bordarii operantes una die ebdomade' (i. 186).

[2] 'Excepto rustico opere sicut deprecari poterat a preposito' (i. 172 *b*). 'Homines operantur opera regis quæ prepositus jusserit' (i. 219).

[3] 'Cum gablo rusticorum' (i. 12 *b*).

[4] 'Hec terra . . . de censu terre et operibus burgensium reddit LXXV solidos et VII denarios' (i. 280).

[5] 'Unaquæque integra masura . . . tribus diebus in Augusto secabat ad Maurdine et una die ad fenum congregandum erat ubi vicecomes volebat' (i. 179).

[6] 'In burgo fuerunt CXVIII masuræ ,   . Ad curiam operabantur sicut villani T.R.E.' (i. 17).

14th centuries, just as Kent also had. But here was no exception to the rule that the villani were classed in grades, each grade with equal holdings (*Ib.*).

I contend that, on the contrary, we have here to do with a very remarkable exception to that 'rule' which Mr. Seebohm has so ably set forth. I have gone carefully through the manors in question, as surveyed in the *Inquisitio Eliensis*, and I think the following results will be found tolerably accurate :

40 villeins, holding 5 acres.
1 ,, ,, 6 ,,
17 ,, ,, 7 ,,
32 ,, ,, 7½ ,,
32 ,, ,, 8 ,,
13 ,, ,, 9 ,,
61 ,, ,, 10 ,,
11 ,, ,, 11 ,,
37 ,, ,, 12 ,,
12 ,, ,, 15 ,,

It will be seen how startling is the difference between such a system as this and Mr. Seebohm's four 'grades' of villeins, holding respectively 15, 30, 60, and 120 acres (taking his estimate of the hide and virgate). But as the hide and virgate are found in these manors as measures, though not as holdings, the extremely interesting question is raised, as it seems to me, whether this system of 'small holdings' may not have been superimposed on the older 'virgate' system. And this further suggests the question whether, if the 'virgate' under the normal system was the typical villein holding, the three other grades of holding represent a later development of the system by the division or aggregation of the original virgates ?

Before finally taking leave of the subject of 'measures of land in Domesday,' it should be noted that on the title-page of his ' Key to Domesday' Mr. Eyton places prominently

'its exactitude of mensuration.' It might almost be described
as having been a passion with him to account for every acre
in each county on which he wrote. At first sight, no doubt,
his results are wonderful. Every item is exactly accounted
for. Yet, alas! this perfect system will not bear the strain of
test. When Mr. Eyton was sure of the total for which he
had to account, he was generally able to account for it. But
sometimes the total turned out to be wrong after he had
accounted for it quite satisfactorily under the impression
that it was right. And this, I fear, is fatal. Take for in-
stance the case of Drayton in his analysis of the Staffordshire
Survey. Mr. Eyton considered that the area for which he
had here to account was 3,315 acres. He reckoned up its
two constituent manors, the king's and Thurstan's, which con-
tained between them 9 ploughlands—that is according to
what he terms his 'oft-repeated theory,' 1,080 acres + '20
acres of meadow, and (as I,' he adds, 'compute the measure-
ments) 1,440 acres of wood' (p. 63). You can make nothing
of this but 2,540 acres. Yet Mr. Eyton must have reckoned
it, by an error of over 1,100 acres, at 3,653 acres, for he tells
us that 'the Domesday measures' of these two manors 'imply
338 acres more' than the 3,315 that he had to account for.
This supposed excess he at once disposes of by informing us
that 'these 338 acres were in Cantwell' (p. 64). But, alas!
in his errata he frankly confesses that the existence of two
manors at Drayton was on his part 'a delusion,' as one of the
two had been included in error, and that his calculations in
Drayton were consequently 'mostly inept!' Again, to take
another instance, it has been ably suggested by General
Wrottesly (introduction to the 'Burton Chartulary,' p. 3),
that the supposed suppression of Burton Abbey's estate in
Burton itself was due to an error in the compilation of
Domesday, the words 'in ipsa villa' introducing the said estate
being represented in the Survey as referring to Stafford.

This ingenious hypothesis appears to carry conviction with it. Thus the estate in Stafford assigned by Domesday to the Abbey would simply represent the Burton estate, supposed by Mr. Eyton to have been suppressed. When, therefore, he estimated the alleged estate in Stafford at 240 + 16 + 360, i.e. 516 acres (p. 93), he was in reality, though he knew it not, estimating the supposedly suppressed estate, which estate he had separately estimated at 6,580 acres [1] (or, contradictorily, in another place, at 'some 5,370').[2] That is to say, the area of one and the same estate was unconsciously proved by him in one place to be ten times as much as he proved it in the other.

After such striking examples as these of the way in which, if not the greatest, at least the most ardent of Domesday scholars 'hopelessly wrecked his little bark' (to quote from the opening page of this paper) on 'the rock' of measures of land, it should be hardly necessary to warn the student that undue precipitancy or rash confidence will inevitably lead him to the same fate.

POSTSCRIPT.—Since the above paper was in type I have found evidence proving that the Domesday hide (i.e. the unit of assessment) contained 120 acres as contended by me in the text.

[1] P. 10.   [2] P. 14.

A New View of the Geldable Unit of Assessment of Domesday.

L. L. A *Liber Eliensis* of the year 1221, being Tiberius
B. ii. in the Cottonian MSS.

L. E. Another *Liber Eliensis* of the year 1277, being
Claudius C. xi. in the Cottonian MSS., of which another copy
is in Caius College Library, though mutilated in some
places.

H. R. The *Hundred Rolls*. Printed in two vols.

D. P. The *Domesday of St. Paul*, edited by the late
Archdeacon Hale for the Camden Society.

Errata et Addenda.

Page 377, No. 70, *instead of* Roman Stadion *read* Stadion of 720 Roman feet square, *and add* The eighteenth part of this Stadion is the Roman jugerum, and the amount of the Sussex short acre of 100 statute poles.

Page 383, Russia, *instead of* 5 Roman Stadia *read* 5 Stadia of 720 Roman feet.

A New View of the Geldable Unit of Assessment of Domesday.

EMBRACING THE DIVISIONS OF THE LIBRA OR POUND OF
SILVER AND THE WEIGHTS AND MEASURES OF UN-
COINED METAL, FLOUR, CLOTH, &c., AS MADE BY THE
ANGLI, MERCIANS, DANES, NORMANS, AND CELTS, AND
THEIR CONNECTION WITH THE TRUE UNDERSTANDING
OF THE WORDS 'HIDA,' 'CARUCATA,' 'VIRGATA,' 'VIL-
LANUS,' 'ANGLICUS NUMERUS,' &c.

By O. C. PELL, M.A., BARRISTER-AT-LAW.

IT has been necessary in writing this paper to refer to certain
MSS.; these MSS. are cited by me under letters which are
placed against the description of such MSS. as follows:—

D. Bk. *Domesday Book*, &c., as printed by authority of
Parliament, in four vols.

E. L. A *Liber Eliensis* of the year 1221, being Tiberius
B. ii. in the Cottonian MSS.

L. E. Another *Liber Eliensis* of the year 1277, being
Claudius C. xi. in the Cottonian MSS., of which another copy
is in Caius College Library, though mutilated in some
places.

H. R. The *Hundred Rolls.* Printed in two vols.

D. P. The *Domesday of St. Paul*, edited by the late
Archdeacon Hale for the Camden Society.

R. C. The *Cartulary of Ramsey Abbey*, at the Record Office, now in course of publication in the Rolls series, but of which only the first two volumes are as yet printed.

Exon. D. The *Exon Domesday*, printed in 1816 by order of Parliament, and containing the original returns of the Domesday Commissioners, from which portions of Domesday Book itself for the counties of Cornwall, Devon, Dorset, Somerset, and Wiltshire were compiled.

E. M. A MS. (in the possession of the Dean and Chapter of Ely) of the reign of Ed. II. called *Extenta Manerii*, but relating to seven Manors only.

P. G. The *Chartulary of St. Peter's, Gloucester*, in the Rolls Series.

B. B. *Boldon Book.*

W. P. *Registrum Prioratus Beatæ Mariæ Wigornensis* (Camden Society's Publication).

Some of these MSS. give the size of the virgate of the manor, in those manors to which they relate, and some of them give in addition the area of the lord's demesne farm in each manor, and the number of ploughs at work on such demesne.

It is obvious, therefore, that these MSS., written as they are ' on the same lines' as D. Bk. (but going minutely into detail), give the clue to solve many doubtful points as to the meaning of such words as *hida, carucata, terra ad carucam,* and *virgata,* and they are somewhat of a key to the survey of 1086.

For the sake of easy reference I have arranged the contents of this paper under the following heads :—

I. The Libra or pound of silver; divisions of in account into shillings and pence, &c.

II. The divisions of the land. Poles or virgæ, acræ, bovatæ, and virgatæ, &c.

III. The Areal 'Hida,' 'Terra ad carucam' or 'carucata'
    of the lords and their men.
IV. The Unit of Assessment.
 V. The Geldable 'Hida' or 'Carucata.'
VI. The Anglicus Numerus, &c.
VII. 'Villanus,' 'Servus.'

I. THE LIBRA OR POUND OF SILVER.
Division of in account into Shillings and Pence.

It has sometimes been said, and at first sight it would ap-
pear to have been said with truth, that discussions as to the
meaning of the words 'hida,' 'terra ad carucam,' 'carucatæ,'
and such like found in Domesday are vain and useless, in
that they deal with matters of dry detail, and lead to no end
worthy of the labour bestowed upon them.

I think otherwise, and venture to say that these very
particulars (when it is perceived what they really imply) are
some of the most interesting to be found in the Great Survey,
and contain matter of the most importance to the historian
dealing with Anglo-Saxon times, for in them is wrapped up
the key to much that has hitherto been only matter of specu-
lation, and also to the knowledge of the race and the numbers,
actual condition, and monetary position of the people in-
habiting these islands in those times.

In order to support the statement thus made by me, I
must first of all consider the divisions of the libra or pound
weight of silver and gold in ancient times. The libra (not
the Tower or moneyers' pound) was then divided (in matters
of account) in different ways. Among the Romans, in
matters of account, it was divided into 72 shillings nominally,
each of 96 grains, such grains or units being about one-sixth
less than our Troy grains. This division for purposes of
accounts, notwithstanding the depreciation of the actual coins

themselves, appears to have been in practice at the time of the Theodosian and Justinian Codes; for instance, ' Si quis solidos appendere voluit auri cocti, VI solidos quaternorum scriptulorum nostris vultibus figuratos appendat pro singulis unciis,' Cod. Theod. liber xii. tit. 7, p. 563 ; and again, ' Quotiescunque certa solidorum summa pro tituli quantitate debetur et auri massa transmittitur in LXXII solidos libra feratur,' Cod. Justin. ix. tit. 7, p. 5.

The Anglo-Saxons also in matters of account, before the advent of the Danes and the treaty between Alfred and Guthrum (referred to below), appear to have divided their pound into scillings of 4 peninga, each *penig* being 20 grains Troy, or 26⅔ wheat grains, 32 of which equalled 24 grains Troy. The actual existence of this wheat grain is most material as bearing on the land measures, the subject of this inquiry, and for the understanding of certain portions of Domesday Book. That the Anglo-Saxons had a shilling of 4*d.* appears from a passage in Ina's laws, to be found at p. 140, vol. i. of Thorpe's ' Ancient Laws and Institutes of England,' where an ox's tail is put at 1 scilling, which in another version of the same date and of the same law is said to be 4 peninga. So, too, in the laws of the Conqueror, section 1, xi. page 472 of the same volume of Thorpe, ' De membrorum mutilacione.' ' Del dei apres le poucer XV sol de sol Engleis que est apele quaer denier.'

But though the Romans and the Anglo-Saxons appear to have divided the libra in the way that I have mentioned, yet at the very time that it was so divided there was another division of the libra in practice in Europe, and perhaps in England, which was afterwards used by the Normans and Danes, which existed on the continent long before their advent in these islands, and which coincides with our division of the pound and with Troy weight, being the division which gives 20 solidi to the libra, 12 pence of 24 grains Troy (or

32 wheat grains) to the solidus, and, therefore, 240 pence to the pound. This system was that of Charlemagne, and the proportions were those of the lira of Italy, the libra of Spain, and the livre of France.

This division of the pound is to be found at a very early time in the beginning of the seventh century, and possibly considerably before that time. At any rate, it is mentioned in the 'Leges Alamannicæ,' cap. vi. § 3 :—' Saiga autem est quarta pars tremissis—hoc est denarius unus : duo saiga duo denarii dicuntur. Tremissis est tertia pars solidi et sunt denarii quatuor.' See also 'Leges Ripuariæ,' c. xix. § 1. But further, there is distinct evidence that this division was in force in the middle of the eighth century in England. It appears in the ' Historia Eliensis ' (Gale's ' Scriptores,' xv. p. 472) that Britnoth purchased at that time certain land at Cypenham, in Cambridgeshire, and agreed 'quod Abbas pro singulis hidis C solidos daret.' When the payment was to be made, the MS. goes on to say, ' venit uxor Alfuodi XV libras acceptura, et abbati III integras hydas traditura.' This would make the solidus one of 12 pence. Moreover, a century earlier, in the treaty of peace between Alfred and Guthrum (Thorpe's ' Ancient Laws and Institutes,' vol. ii. p. 481), we find this entry :—' Twi hindi hominis wera est twahund, scilicet ducenti sol. ex V scl. denariis, qui faciunt IIII lib. et XL d.,' thus disclosing a shilling of five pence and pointing to the conclusion that a division of the libra into 240 denarii, as well as into one of 288 pence, had at the time, and perhaps for the purposes of that treaty, been adopted by the Wessex king ; the mere statement of the number of denarii in a scilling implying the co-existence of solidi of a different denomination.

To carry on this portion of the inquiry one step further in anticipation of what will be more fully shown, it has to be mentioned that expressions such as ' uncia agri,' ' solidata

terræ,' and 'librata terræ' are often to be met with in old MSS. Thus, in vol. ii. of 'H. R.,' page 725, under the heading 'De eis qui debent ere Milites,' we read : 'Dicunt juratores quod Robertus filius Nigelli habet terram suam valoris xx libr. argenti et amplius' (meaning the fee simple value) ; and, in the next entry, 'Dicunt et jurant quod Johannis filius Rogeri Gernon habet xx libras terræ et non est miles.' Now, supposing that if at any time in England land had to be distributed or redistributed and taxed by libræ argenti and acres measured by poles or virgæ corresponding to the measures of money or money's worth reserved on such distribution—*i.e.* by the pence contained in a pound of silver or by the measures of food or cloth, &c., for which such pence were the equivalent; and supposing, further, that once there were in England different modes of division of the libra at the same time—as there certainly were at the time of Edgar, and very likely at a much earlier time—then it is plain that 1*d.* per acre of acres in a two-course shift would give 288 acres to the pound, and 2*d.* per acre would give 144 acres to the pound with those who divided the libra into 288 pence, whilst 1*d.* per acre would give 240 acres in the one case, and 2*d.* per acre would give 120 acres in the other case, to the pound with those who divided the libra into 240 pence. Now, the Normans used this Frank division of the pound which gives 240 pence to the libra, and on examination I think it is pretty fairly sure that this last-mentioned area of 120 acres (taxed at 2*d.* per acre, being the sown portion of a plot of 240 acres in a two-course shift) was the Norman unit of assessment all over England, and is recorded under some one or other of the expressions 'hida,' 'carucata,' 'terra est car.' and 'car. possunt ere,' as shown further on. It is necessary to say here also in anticipation that it is more than likely that D. Bk. directly mentions the geldable land

only, and that linked to it may be fallow land lying 'in communi' untaxed and unnoticed (as will also appear further on), so that the 120 acres might represent 240 acres in a two-course shift, and 180 in a three-course. Continuing on with the divisions of the pound : it appears that there was another division of a weight or mark of gold, which I have ventured to call pre-Anglo-Saxon, and British (because used by that people), but which I shall allude to in this paper as Mercian, as for a long period it was the basis of the moneys of account of the Kingdom of Mercia and lingered on till after the time of D. Bk. in regard to customary payments ; this weight or mark (not to be confounded with the old libra mercatoria of 15 ounces of 7,680 *Troy* grains) was perhaps Gothic or Scandinavian, but was certainly founded on a wheat grain, 32 of which equalled 24 Troy grains, being as eight to six, or three-fourths the weight of the Troy grain. Of the existence of this grain we are made aware by referring to Thos. Rudborn in 'Hist. Maj. Winton. Anglia Sacra,' vol. i. p. 257, who says it was declared by W. Conq. (1083) that a penny sterling was to weigh 32 wheat grains, and also to the declaratory statute 3 Ed. 51, which enacts 'that an English penny called a Sterling round and without clipping shall weigh thirty-two wheat-ears from the midst of the ear,' and declares that 'twenty pence shall make one ounce, and twelve ounces one pound.' It will appear, therefore, that there were 7,680 of these wheat grains (= 5,760 Troy grains) in the Norman and Edward's pound. If we divide the 7,680 grains by 30, we have a pound containing 256 pence instead of the 240 of the Norman or 288 of the Saxon pound ; but all three pounds, if of the same weight, containing in actual weight 7,680 wheat grains. The men of Berkholt (Suffolk), in the Placita coram Rege 37 Henr. III. Rot. 4, plead a *prescriptive* right to pay to the Lord of the Manor the customary fee of two ounces, or 'oras,' of the value of 32 pence (each of 30

grains). So also in Camden's 'Britan. in Belgis,' p. 186, citing an authority from the register of Burton Abbey, this ora of 16 pence is disclosed, each penny being 30 wheat grains = 22½ Troy grains. Wherever a payment is recorded as having to be made in '2 Oræ denariorum,' it is invariably stated as to be made 'ex veteri consuetudine,' and, as in D. Bk. it is so recorded (as we shall see), it is plain how very old, even at that day, such a money must have been, and that it must have existed long before the advent of the Danes.

There is to be noticed this analogy between the Anglo-Saxon and Mercian mark, viz. that the number of grains in the Anglo-Saxon penny and Mercian penny is in decimals, and the Norman penny in duodecimals; but, on the other hand, this is compensated in the former by a division into shillings of duodecimal or sexdecimal figures.

This old (and possibly British) weight of 7,680 grains, divided into 256 pence, was further divided into 16 oræ of 16 penny-weights. And in this case the ounce, or ora, would equal that referred to in the 'Laws of King Ethelred' (IV. De Institutis Lundoniæ, sec. ix.), Thorpe, vol. i. p. 303, thus: 'Omne pondus sit marcatum ad pondus quo pecunia mea recipitur, et eorum singulum signetur ita quod XV ore libram faciant,' 15 ounces thus equalling 16 ounces of Ethelred, the latter containing 480 Mercian wheat grains in the ounce instead of 512 : the necessity for thus marking the pound would not have arisen (it is evident) if the Mercian mark had been originally 15 ounces. As Ethelred calls this weight a 'libra,' I shall refer to it indifferently either as a *pound* or a *mark*.

Before I proceed to examine more in detail the component parts of these moneys of account, to which as yet I have only generally alluded, it is perhaps necessary to say that in very early times, no doubt, the render that was owing from a man was not reserved in actual coined money; it might have been,

and no doubt was, reserved in food, measures of flour, cloth, cattle, uncoined metal, or even, perhaps, slaves ; but these had recognised equivalents in money. Thus the old laws of the Saxons on the Continent give the equivalents of what was originally reserved in cattle, grain, or honey, stating the number or amount of each that was supposed to equal a solidus. In very old times an ox was treated as a nomisma ; so too in Norway the render being reserved in ells of cloth, the equivalent of six of such ells was reckoned as an ore of 'wadmal,' and the ell subsequently coined as a penny. So, too (in the Venedotian Code, Book ii. c. xxvi.), if the render of a free mænol (occupied by several homesteads or tyddens) consisting of a horse-load of flour, the carcase of a cow, a vat of mead, seven thraves of oats, a three-year-old swine, a salted flitch, and a vessel of butter, could not be obtained, it was commuted thus, ' 6 score pence for bread, 3 score for liquor, and 3 score for enllyn' (i.e. what was eaten with bread). There is every reason to suppose that this right of commutation had existed for some time, each score of pence representing in weight one ounce in a pound of 12 ounces to the pound of silver, being the pound of pence in use at the time when the copy of the Code that I am quoting from was made. Proceeding now to a detailed account of these pounds, I will, beginning with the grain, go on to the denarius, the ounce or ore, and finally the pound itself.

The Grain.

It will be gathered from what has gone before that there were two kinds of grains in use as measures of weight in England. First, the Troy grain, 5,400 of which went to the Old Tower or moneyers' pound, which appears to have been the Saxon pound of coined money as distinguished from the money of account. Secondly, the wheat grain, 4 of which equalled 3 grains Troy ; 32 therefore counterbalanced the 24

Troy grains in a Norman pennyweight, and 640 equalled the 480 Troy in an ounce; 7,680 wheat grains in a Mercian mark or pound of 16 oræ or solidi of 16 pennyweights, therefore answer to 5,760 Troy of a pound of 12 ounces of 20 penny-weights to the pound, and 9,600 to 7,200 Troy of a pound of 15 ounces of 20 pennyweights; the 9,600 wheat grains being the contents of a pound of 15 ounces of 20 pennyweights of 32 wheat grains, or of a pound of 16 ounces of 20 penny-weights of 30 wheat grains each.   It is worth mentioning that according to Kelly ('Cambist,' p. 379), the Barbary pound of 16 ounces of 160 carobs weighs exactly 7,680 Troy grains, being equal to the pound of 16 ounces of 20 pennyweights of 32 wheat grains.   This makes an ounce of 480 Troy grains, or 640 wheat grains, to equal in weight an ounce of 160 carobs, 1 carob equalling 3 Troy grains or 4 wheat grains. Twelve ounces of this pound, therefore, is identical with the English Troy pound, and this identity clearly connects our *Troy* grains and weights with those used in Eastern countries.

'Denarius' and 'nummus.'

If an examination be made of the statements given by different authorities of ancient *coins* of the same denomina-tion still existing, it will be found that hardly any are described as being of exactly the same weight.   Of course a good deal of this variation in weight may be accounted for by the wear due to the lapse of time, &c.; but as long as payments were principally made by weight and not by tale, it is possible that the actual amount of metal put into the denarius was from time to time purposely varied : such a practice (as pay-ments were oftener made by weight than by number) might be convenient for that arrangement.

That this was so seems to follow from the purposely and oft-repeated statement in D. Bk. of payments to be made '*in denariis qui sunt xx*[st] *in ora*'; moreover, if an examination be

made of Ruding's book on coins, it will be seen that up to the
time of Guthrum the Dane's treaty with Alfred (alluded to
post) there can be found no penny or denarius approaching
the weight of 24 Troy grains; 18 grains nearly represents the
average weight, and 288 pence of 18¾ Troy grains would
exactly make the 5,400 Troy grains of the Tower pound
supposed to be Anglo-Saxon. At the time of Guthrum's
treaty an actual penny containing 24 grains of metal appears
for the first time in the list of Anglo-Saxon coins, and the
reason why the actual denarius was so increased in weight
appears to have arisen from the necessity of a coin in unison
with the requirements of that treaty made with a king and
people who used a pound of account supposed to contain
12 oræ, 'denariorum qui sunt XX^{ti} in ora,' and giving a
total of 240 pence in weight instead of 288 in weight in the
pound. There was another denarius or 'nummus' of 30
wheat grains, 16 ounces of which, with 16 to the ounce, made
the Mercian mark already alluded to, and (as will be hereafter
seen) in use in this country long before the advent of the
Danes at a very early time, and which probably existed in
England and in Scandinavia before the arrival of the Saxons
also. This word 'nummus' was a general term used in refer-
ence to denarii and ounces of denarii. Thus in D. Bk. Tom. i.
fol. 164, 'Modo reddit XL lib. alborum nummorum de XX in
ora;' and 'Cui committunt solidos' (i.e. marks of gold) 'triginta
millia per singulos *constanti numero* sexdecem nummis'
('Scriptores post Bedam,' p. 837), i.e. oræ (each of 16 denarii,
as mentioned at Pampesford in Cambridgeshire, and referred
to immediately below on this page, where 4 oræ = 64 pence :
as 7,680 wheat grains = 1 libra, this would give 30 wheat
grains to the penny, and 480 to the ounce, and 256 pence to
the pound). Moreover (though it has been stated by Ellis,
and has been constantly repeated after him, that the only
ounce and the only denarius in D. Bk. is the ounce of 12 to

the pound and the penny of 20 to the ounce), yet this is not
so, as the penny of 16 to the ounce alluded to above, and
fully proved *post*, still lingered on as a customary payment
and is to be found in D. Bk. itself. The 'Inquisitio Comi-
tatus Cantabrigiensis' (being the original return from which
D. Bk. for the county of Cambridge was made up) still exists
in the Cott. MS. Tib. A. vi ; it has been published by Mr.
Hamilton, London, 1876, and in parallel columns with the
corresponding entries in D. Bk.

At page 38 of Mr. Hamilton's book and in f. 96 b, col. 2 of
the MS. will be found the following, in regard to Pampes-
uuorde in Cambridgeshire. 'Et in eadem villa tenet quidam
presbyter dimidiam virgam de Judeta Comitessa ; duobus
bobus est terra. Hæc terra valet et valuit *iiii horas.*' This
in the same page of Mr. Hamilton's book, and in Domesday,
vol. i. p. 202 a, col. 2, is put thus : 'In Pampesuuorde tenet
unus presbyter de comitessa dimidiam virgam. Valet et
valuit *lxiiii denar.*' From this single entry, and from the
entry in Hundred Rolls, 2 vol. p. 414, col. 2, where this hold-
ing is called 32 acres (of 'wara,' see *post*), we can gather that
the area of a virgate at Pampesford with the fallow was 64
acres, which at a penny an acre would give 256 pence to the
. pound, and 256 acres to the hide, 16 pennies to the ounce,
and 16 ounces to the pound, coinciding in every respect with
the entries in regard to the land Inter Ripam (set out *post*)
in the time of Edward the Confessor.

Solidus, Scilling.

The solidus, or scilling, as used in ancient and pre-Domes-
day matters of account, did not necessarily mean any one
particular and existing coin, but implied either a piece or
quantity of uncoined silver or gold of a certain weight, or
some number of smaller, and perhaps actually existing, coins
grouped together into one item of account and called a

solidus or shilling. These solidi or shillings were called
aurei or argentei, according to whether they related to gold
or silver. Thus, as will be seen later on, there was in England
the Mercian mark of gold, or solidus of 16 solidi of 16
'nummi' or pence, as also there was on the Continent the
shilling of weighed gold, alluded to in the note to page 16 of
vol. i. of Thorpe's 'Ancient Laws and Institutions.' The
original shilling of account of the Anglo-Saxons would
appear to be, as has been stated, a solidus supposed to equal
4 denarii of 20 grains Troy, and this would agree as a matter
of account with the 18¾ grains in the actual penny of the
Tower pound. The shilling of account of the Danes and
Normans was 12d. of 24 grains Troy each, and this agrees
with the then new solidus of 5 denarii of Alfred's treaty,
containing 24 grains each, 48 of the latter equalling 20 of the
former. The Mercian solidus or ora of 16d. of 30 wheat
grains, or 22½ grains Troy, would thus equal 15 denarii of 24
grains of the Norman and Danish pound. There was thus at
the time of D. Bk. the solidus of 5 denarii of 24 grains Troy,
the Mercian solidus or ora of 16 denarii of 30 wheat grains,
the Norman and Danish solidus of 12 denarii of 24 grains
Troy, and the old Anglo-Saxon solidus of 4 denarii, and all
moneys of account.

Ounce, Ora.

The ounce of course was originally the twelfth part of a
pound, but the Scandinavian word ora had a more extended
meaning: it was applied to signify a larger number of ounces
in the pound; thus, as we shall see, a pound of 12 oræ of
20d. of the Danes and Normans was equalled by 16 solidi or
oræ of 16d. each of the Mercians.

The Libra and Mercian Mark.

A libra was, as is well known, divided uncially by the
Romans into 12 unciæ of 24 scrupula of 24 lentes, and such

was the division of the uncia, or uinge, among the Celts in Ireland, who had, like the Anglo-Saxons, their long hundred, and used the duodecimal system in their measurements of land.

In the Brehon Laws, vol. iii. p. 106, it appears that with the Irish Celts a screpall equalled 3 pinguins, and that a pinguin weighed 8 grains of wheat : taking 4 wheat grains to equal 3 grains Troy, a screpall would therefore equal 18 grains Troy. From vol. ii. p. 134, the following table can be made out :—

```
        1 screpall.
        4 = colpatch heifer 1.
       16 =   4 sam haisc heifer 1.
       24 =   6 =  1½ = cow  1 uinge or ounce.
       72 =  18 =  3⅔ =      3 = Cumhall (female slave) 1, vol. iii. p. 98.
      288 =  72 = 18 =      12 = 4 = 1 (libra ?).
```

There would thus be 6,912 wheat grains, or 5,184 Troy grains, in 12 uinges, though the Celts in Ireland do not seem to have known the libra proper. Considering that in matters of account the items of account must in some measure conform to actually existing coins or weights of uncoined metal, that the average weight of known Anglo-Saxon coins (struck before the Danish treaty of Guthrum) is under 20 grains Troy ; that the Anglo-Saxons, like the Irish Celts, used the long hundred in their calculations, and that by their system of measurement the decempedal rod was divided into duodecimal divisions, it seems to be most probable that they too, in matters of account, divided their pound and ounces in the like way—that is, duodecimally. This supposition is supported by the fact that there are entries in D. Bk. where ten acres are taxed at 12 denarii, five acres at 6 denarii, and so on. If the Saxon penny contained 20 grains, and the Norman penny 24 grains, as I suggest, then it is clear that 10 Norman pennies would give one penny an acre, and would equal the 12 denarii supposed to be Saxon (Harduic, D. Bk., vol. i. p. 191b).

In Jeakes' weights and measures, in his 'Arithmetic Surveyed and Reviewed' (London, 1596), it appears from the 'Pathway to Knowledge' quoted therein, 'that the avoirdupois pound was parted in 16 ounces, every ounce into 8 drachms, and every drachm into 3 scruples, and every scruple into 20 grains; 12 ounces of this pound would thus be the Troy pound, divided according to the supposed Anglo-Saxon division in account, and would be in reality the old standard. This would show the origin of Apothecaries' weight. Medicines were dispensed by this old subdivision of the pound, and continued to be so after the pound of Elizabeth had supplanted the old one. It was then natural that the ounce, drachm, and scruple—which were no aliquot parts of the new pound avoirdupois, but which were aliquot parts of the pound Troy—should be referred to the latter.' The Danish and Norman divisions of the pound were those disclosed by D. Bk., and now existing in the pound Troy, viz. 12 ounces to the pound and 20 pennyweights to the ounce. In a treaty between peoples who divided their money of account in different ways, it would be only reasonable that one should be adopted by which the clauses of the treaty would be regulated. Such seems to have been the course pursued by the treaty between Alfred and Guthrum cited below, where it is expressly stated that the scilling of account was to be 5 denarii. See also the 3rd of the Ecclesiastical Laws of Canute, and the comments thereon in the 'Chronicon Pretiosum,' p. 29. This, of course, would give 48 shillings of 5 denarii to the pound, and would fit in with the 12 oræ of 20 denarii to the ora of the Danes and Normans, and to the 16 oræ of 16 denarii of 30 wheat grains of the Mercian libra or mark; more especially since in regard to the latter the Mercian King Ethelred (as appears by the quotation from his laws referred to above) ordered his pound of 16 oræ to be marked 15, which it in fact equalled in weight when 32 wheat grains,

or 24 Troy, were reckoned to the denarius instead of 30 wheat grains.

This Mercian mark was not the mark of six ounces of gold of later times, which equalled six pounds of silver (Madox, Exch. p. 189), but was in computation an ounce or solidus of gold, and equalled, as we have seen, 15 solidi or ounces (Madox, p. 189, note 6), or a libra of 16 ounces of 16 denarii of 30 wheat grains, was perhaps, as already hinted, of Scandinavian origin, but was undoubtedly introduced into this country at a very early time, seemingly at or before the Anglo-Saxon settlements. The first recorded mention of this mark (that I can find) appears in connection with Ina's raid into Kent, shortly after the commencement of the eighth century (long before the advent of the Danes into this country), and the ransom taken by him in consequence of its success. We have four separate descriptions of this ransom—first, that of Malmesbury 'De Gest. Reg.' p. 14, ' Nundinantur pacem XXX millibus auri marcis'; secondly, of the Saxon Chronicle (Ingram, p. 58), where it is called thirty thousand libræ ; and, thirdly, that of (the earliest of the writers) Ethelwerd (not a Danish writer), in Gale's ' Scriptores post Bedam,' p. 837, ' Cui committunt *solidos* triginta millia per singulos *constanti numero sexdecim nummis,*' —i.e. 16 oræ (of 16^d ?). The fourth description is that of Florence of Worcester, who states it at 3,750 libræ : now 30,000 *manci* of eight to the pound do make 3,750 pounds. But Ethelwerd, the earliest writer, distinctly says, ' *constanti numero sexdecim nummis.*' We have, therefore, 1 libra (whether we take 3,750 libræ or whether we take 30,000 libræ), equalling 1 solidus of 16 nummi. Now, the libra of Florence and that of Malmesbury was 240 pence, or 7,680 wheat grains ; the 'nummus' alluded to was therefore 480 wheat grains—that is, 16 denarii of 30 grains, which equal 15 denarii of 32 wheat grains. Moreover, taking 8 manci to

a pound, the mancus would be 30 (2 × 15) pence of 32 wheat grains, which equal 32 pence (2 × 16) of 30 wheat grains— that is, 256 pence of 30 grains. This mark of 256 nummi or pence to a pound of 16 ounces still continued as the money of account among the Mercians at the time of the treaty between Guthrum, the Danish king, and Alfred—a treaty intended to embrace the whole of England, and to place the 'were' for blood-shedding on an equal footing for Saxon, Mercian, and Dane, and, as all these are stated in it to be equally ' dear,' we may therefore take the price of the several weres to be reckoned in equivalent weights or sums of money, though stated in different ways in the different clauses of the treaty. This treaty is to be found in Thorpe's 'Ancient Laws and Institutes of England,' printed by command, &c., vol. i. p. 153, in the section headed 'The Laws of King Alfred.' Amongst other clauses we first find the following :—

' *This the peace that King Ælfred, and King Guthrum, and the " Witan " of all the English nation, and all the people that are in East Anglia ordained, and have sworn to, as well for themselves as for their offspring.*

' *1st. Concerning their land, boundaries, &c.*

' *2nd. And they ordained : if a man should be slain, we estimate dear, English and Danish at viii half marks of pure gold ; besides the " ceorl " who resides in " gafol land," and their " liesings " : they also are equally dear either at cc shillings.'*

We also find at vol. ii. p. 473, a Latin version of the same clause as follows :—' *De precio occisi Daci vel Angli. II. Hoc est autem primum : si quis occidatur omnes reputamus eque caros, Dacum et Anglum, ad viii dimidias marcas cocti auri, preter ceorlum, i.e. rusticum, qui in Gaffuland, i.e. in terra censaria, manet, et eorum redemptiones sunt eque care, cc sol.'* From this it is very clear that the ' mark of gold ' could not be the mancus of 30 pence. Moreover, in the 'Leges Hen. I.' lxx. 89, the 8 half-marks of pure gold are put as four libræ,

clearly showing that the mark of gold was equivalent to a libra. So also, in Ducange (*voc.* Marca et Libra), 'Marca et libra in Anglia unum et idem interdum sonant. Charta ann. 1296, apud eundem Rymer, tom. 2, page 732 : "Cum nos concesserimus dilecto clerico nostro Gilberto . . . quandam ecclesiam viginti *marcarum vel librarum valorem annuum attingentem.*"' Florence of Worcester, who died 434 years after Ina's raid, evidently confused the mancus of 30 pence with the mark of gold which equalled a pound. The money payments for the Dane and Englishman were therefore to be equivalent in whatever money they might be stated in. In vol. ii. p. 481, we have the more detailed account of the money value of these 'equally dear' weregilds as follows :—

'*De Weregildis.*

'*Twi hindi hominis wera est twa-hund, scilicet ducenti sol. ex v scl. denariis, qui faciunt iiii lib. et xl d.*

'*Twelfhindi hominis weregildum est twelf-hund scillinga i.e. duodecies c sol. qui faciunt libras xxv*' (this is six times the former amount).

Page 484, vol. ii. '*De eisdem in Mercennorum laga*' :

'*Ceorles Weregildum est in Mercennorum laga cc sol. Tayni Weregildum est sexies tantum, i.e. duodecies c sol. Regis simplum weregildum est sex taynorum weregildum, in Mercennorum laga hoc est xxx*' (Anglico numero 36,000) '*millia sceattæ, id est totaliter cxx libre*'—*i.e.* in weight, not in tale. In other versions 'sceattæ' do not appear, but 'thrimsæ' take their place. Pence probably were meant, as 36,000 sceattæ could not possibly equal 150 pounds of Alfred's money. (As to the value of the sceatta, see Thorpe's Glossary, at the end of the second volume, where he makes 30 sceats to equal 1½ scillinga.) Multiplying the Anglo-Saxon twelf-hund 'were' by six (as in the Mercian laga) for the king's 'were,' we have 150 libræ, equalling in weight 120 Mercian libræ. One hundred and twenty of Ethelred's new pound (afterwards adopted by

Canute) of *fifteen* ounces of twenty pennyweights do equal one hundred and fifty pounds of twelve ounces of twenty pennyweights. Stating the Mercian 'were,' however, *in its own money*, we have 150 libræ of 16 ounces of 16 Mercian pence, equalling in weight 150 libræ of 12 ounces of 20 pence. Thus, as 36,000 treaty pence equal 38,400 Mercian pence, the treaty pennies must therefore weigh $\frac{1}{15}$ more than the Mercian penny; in other words, the one penny would be 32 wheat grains and the other 30. The twi-hund man and the Mercian ceorl's 'were' is said to be 200 scillinga of 5 denarii each: this stated in Troy grains is 24,000 grains, which equal 32,000 wheat grains, 32 wheat grains equalling 24 grains Troy. On the same page (484) there is another clause (vi.) which says, '*Ceorles Weregildum est cclxvi thrimsæ —i.e. cc sol. secundum lagam Mercennorum.*' The tremissis, or thrimsa, is the third part (as its name implies) of a shilling of 12 denarii, i.e. 4*d.* (see the quotation from the 'Leges Alamannicæ,' *ante*). Putting 30 wheat grains to the Mercian penny, as stated above, we have 120 wheat grains in the tremissis or thrymsa, and dividing 32,000 wheat grains by 120 we find that the calculation is correct, and that there are 266⅔ thrimsæ of 4*d.* in the 32,000 grains (wheat), each thrymsa equalling 4 Mercian pennies of 30 wheat grains. It will be seen that 266⅔ is the exact calculation; in another account the number of thrimsæ is put at 267. The following table shows the calculation at a glance :—

—	No. of Sol.	No. of pence in Sol. Alfred's	No. of wheat grains in penny. Alfred's	Wheat grains in Sol.	Total wheat grains	No. of Danish pounds of 12 oz., of 20d., of 32 wheat grains	No. of Mercian pounds of 16 oz., of 20d., of 30 wheat grains	No. of Mercian pounds of 16 oz., of 16d., of 30 grains	Thrimsæ
The Ceorl, lysing and twihinds were .	200	5	32	160	32,000	4⅙	3⅓	4⅙	266(⅔)
Tayns were (6 times)	1,200	5	32	160	192,000	25	20	25	1,600
Kings were (6 times)	7,200	5	32	160	1,152,000	150	120	150	9,600

9,600 thrimsæ = 36,000 Alfred's pence.

This thus explains the law of King Ethelred the Mercian (afterwards adopted in the laws of King Canute) in regard to the moneyers, in the clause headed 'De monetariis et ubi erunt,' Thorpe (vol. i. p. 303) in which Ethelred directs that there shall be three moneyers in each high port (*summo portu*) and in every other port one moneyer, ' *Ut omne pondus sit marcatum ad pondus quo pecunia mea recipitur, et eorum singulum signetur ita quod* 15 *ore libram faciant.*' A pound of 16 oræ of Mercian pennyweights of 30 wheat grains being equal to a pound of 15 oræ of pennyweights of 32 wheat grains, or 24 Troy. The same thing in effect was done by the declaratory statute of Ed. I., already quoted, by which 32 wheat grains are ordered to go to the penny sterling. According to the above calculation, the following table represents the equivalent number of pence and solidi in the pound and mark, and grains of the same.

	No. of wheat grains	No. of pence	Grains in Penny	Pence in Sol.	Sol. in Pound	Grains in Sol.	Equivalent Sol.		Equivalent pence	Do.	Do.
Norman and Danish pound . . .	7,680	240	32	12	20	384	10	50	120	60	30
Mercian mark . .	7,680	256	30	16	16	480	8	40	128	64	32

I have been thus particular in explanation of this Mercian mark of 16 solidi of 16 pence (or 256 in all) because we have in D. Bk. itself, relating to the Survey of that part of Mercia lying between the Ribble and the Mersey (the land of the Cheshire acre of 10,240 square yards founded on the pole of *sixteen* feet), a recital showing the number of carucæ that there went to a hide and their ' valets' at the time of Edward the Confessor.

These ' valets' are there sometimes stated in Danish or Norman currency, of 12 ounces or oræ of denarii to the pound, and in others in the Mercian currency tallying exactly with the foregoing tables, i.e. that which gives 16 oræ or solidi

of 16 pence to the pound or mark; but there is a general statement applying to all these carucæ and the thains who owned them to be found at the head of the second column of fol. 269 b, D. Bk. running thus : ' *Omnes isti taini habuerunt consuetudinem reddere ii oras denariorum de unaquaque caruca.*' The length of time necessary to support a *custom* would carry back the existence of this Mercian money to a time long antecedent to that of the Danish irruptions.

I have extracted from D. Bk. and placed in the next table below the manors to which the recital refers, their carucæ and their valets as stated in D. Bk., placing in adjoining columns such valets in Norman and Mercian currency, the figures in brackets being mine. As the valet for one car is stated to be 32 denarii or 2 ores, it follows that each Mercian ora or solidus contained 16 denarii, as at Pampesuuorde in Cambridgeshire, *ante*. We learn also from the valets of Latune and Hirleton, where half a hide is put at 10 sol. and 8 denarii (128 pence), that there must have been *four* car in half a hide (4 × 32) or *eight* in a whole one ; the valet, therefore, for a whole hide was 256 Mercian pence or one mark, equalling, as shown in the subjoined table in other entries, one Norman pound of 240 pence. This recital of D. Bk. refers to manors, lands, and carucæ as they were in the time of Edward the Confessor when held by Roger Pictavensis : the statement of the same lands and the re-arranged carucæ working thereon when held by the grantees of Roger at the time of D. Bk. is placed later on in the same folio, and shows different carucæ and uniform valets in Norman money. It has been seen that by the valets one hide by custom would pay 256 pence (8 × 32). Supposing, then, that 32 Mercian pence represented the payment for a virgate (and we know that it did from the entry in regard to Stochestede where a virgate and a half is valued at 4 sol., i.e. 3 Mercian solidi of 16 pence each, or 4 solidi of 12, i.e. in all 48 pence), it follows that

there were 8 virgates in a hide each valued at 32 Mercian pence per virgate; this at one penny per acre would give 16 acres to the bovate, 32 to the virgate, and 256 to the hide or pound-paying unit. The significance of this will appear further on.

1 hide   = 256 acres, *i.e.* 8 virgates of 32 acres = 16 bovates of 16 acres.
Single car.   = 32   „   1   „
* Double car. = 64   „   2   „   See below, Hitune, Erengermeles, Melinge
                                            and Heleshall.
Norman, 240 den. to pound, 20 sol. to pound, 12d. to sol., 32 grains to den.
Mercian, 256   „   16   „   16d.   30   „

Name of Manor	No. of Hides	No. of 'Car.'	'Valet' T. R. E. as stated in D. Bk.	Norman Value in Denarii (32 wheat grains to den.)	Mercian Value in Denarii (30 wheat grains to den.)	No of Grains	The 'Valet' stated in
Hitune . .	1	4*	20 sol.	240	256	7,680	Norman money
Stochestede .	(³⁄₁₆) 1½ virg.	(1½)	4 „	45	48	1,440	Mercian „
Sextone . .	1	(8)	16 „	240	256	7,680	„ „
Chirchedele .	½	(4)	10 „	120	128	3,840	Norman „
Liderlant .	½	(4)	8 „	120	128	3,840	Mercian „
Hinne . .	½	(4)	8 „	120	128	3,840	„ „
Torentum .	½	(4)	8 „	120	128	3,840	„ „
Mele . .	½	(4)	8 „	120	128	3,840	„ „
Uluentune .	(¼)	2	64 den.	60	64	1,920	„ „
Esmedune .	(⅛)	1	32 „	30	32	960	„ „
Alretune .	½	(4)	8 sol.	120	128	3,840	„ „
Spec . .	(¼)	2	64 den.	60	64	1,920	„ „
Cilderunelle .	½	(4)	8 sol.	120	128	3,840	„ „
Wilbaldeslei .	(¼)	2	64 den.	60	64	1,920	„ „
Vuetone . .	(⅛)	1	30 „	30	32	960	Norman „
Wauretreu .	(¼)	2	64 „	60	64	1,920	Mercian „
Boltelai . .	(¼)	2	64 „	60	64	1,920	„ „
Achetun . .	(⅛)	1	32 „	30	32	960	„ „
Fornebei .	(½)	4	10 sol.	120	128	3,840	Norman „
Emuluesldel .	(¼)	2	64 den.	60	64	1,920	Mercian „
Hoiland . .	(¼)	2	64 „	60	64	1,920	„ „
Daltone . .	(⅛)	1	32 „	30	32	960	„ „
Schelmeresdele	(⅛)	1	32 „	30	32	960	„ „
Erengermeles .	(⅜)	(4) 2*	8 sol.	120	128	3,840	„ „
Otegrimele .	½	(4)	10 „	120	128	3,840	Norman „
Latune . .	½	(4)	10 sol. 8d.	120	128	3,840	Mercian „
Herletune .	½	(4)	10 sol. 8d.	120	128	3,840	„ „
Melinge . .	(⅜)	(4) 2*	10 sol.	120	128	3,840	Norman „
Bartune . .	(⅛)	1	32 den.	30	32	960	Mercian „
Heleshall .	(⅜)	(4) 2*	8 sol.	120	128	3,840	„ „
Total .	11¹¹⁄₁₆	93½	pence .	2,805	2,992	—	⎰ 2,992 ac. = 93½ car. of 32 acres to car. = 1 virg.
„ .	—	—	grains .	89,760	89,760	89,760	⎰ 11¹¹⁄₁₆ hides of 256 to hide

This system of dividing units of weights and measures into divisions of 8 and 16 (which I call in this paper the sexdecimal system) I have traced back *as to money* (already shown) to the time of Ina in the Jutish or Gothic kingdom of Kent, and as to measures of land (*post*) to the time of Dynval in his kingdom, whether confined to Wales or (as is much more probable) extended to a large portion of British England. But the system is one of very ancient times, and appears to be referred to by Lappenberg in his 'History of England' under the Anglo-Saxon kings (Translation by Thorpe, vol. i. p. 74 *et seq*.). 'The events in the Saga of the Œscings or founders of the kingdom of Kent take place in an eight times repeated cycle of eight years. Whether the number eight was merely the division given by the probably historic numbers of forty and sixty-four, or whether it had an astronomic allusion, or was founded on some myth, we are unable to discover. We find the number 8 in the division of the 24 hours from one morning to another usual among the Anglo-Saxons and Icelanders. A similar division exists in the eight watches among mariners. As at Rome the period of eight days was superseded only by the Jewish Christian week of seven days, so both German and Scandinavian colloquial terms point tò a similar division of time in the heathen world.'

But though this inquiry is based on the divisions of the pound of silver and the land in connection with it as divided into corresponding divisions, I will not here consider further the relative weights of different pounds of silver any more than I shall after having once for all shown the relative difference in the size of acres and the cause of such difference further consider such difference, but shall show how the grouping of acres, virgates, and bovates corresponded with these three divisions of the pound of silver. We have, then, evidence of there having been in these islands three distinct divisions of a pound of silver: one showing a divi-

sion into 240 pence, another into 256 pence, and another
into 288 pence.   The pound I call Mercian corresponds in
its divisions with the ancient weight of France, called the
Poids de Marc, which was the same for precious metals, and
the customary apothecaries' weight—viz. 16 oz., 32 duelles,
128 sciliques, 256 drachms.   According to Rhys the Britons
came from Gaul, driving out the Goidels.   The divisions are
the same as of the Cologne Marc, which was declared the
standard weight for the precious metals throughout Germany
by an edict of Charles V. in 1524.   All these divisions, it
will be observed, are in the sexdecimal system.

II. DIVISIONS OF THE LAND.

Poles or Virgæ, Acræ, Bovatæ, and Virgatæ.

Measurements of tracts of land were made in ancient as
well as in modern times, by poles (perticæ, quani, acenæ, virgæ,
&c.) and by chains or ropes (forrachs, rapæ, socaria, &c.) being
presumably multiples of the poles.   It may be a question, how-
ever, whether the larger unit (such as a square leuca or league,
as at Battle Abbey, in Sussex, or the five squares of 10 trevs
each contained in the Welsh Cymwd of 12,800 erws (of
1,440 square statute yards each) equalling 3,200 Cornish
acres, was not first roped off and then subdivided by the
pole into smaller units such as the hides or carucates, trevs
and mænols, &c., and the still smaller units of roods or erws
and acres.   It is more reasonable to suppose that a people
(occupying a land for the first time, either by conquest or other-
wise) should plot out portions of the land into large units, and
then subdivide them into smaller units, than that they should
begin with the smallest unit and add unit to unit up to a cer-
tain point of squareness, and then stop.   The varying features
of the land would not permit of such an arrangement.   But
as in the America of to-day, so in the Yorkshire of old, it
seems to me, the land in the first instance was blocked out

into rectangular figures, and then subdivided by dividing the same into inferior divisions by the numbers 8, 10, or 12, and these again into further subdivisions till the smallest unit of all was reached. By using the same pole as the bigger unit was measured by, all the land within it that was suitable for arable purposes might be divided into perches, roods, and acres, which would all bear the same relative proportions to themselves and to the bigger unit as was orginally contemplated when the big block containing pastures and wood, as well as land suitable for arable purposes, was first set out (see 'Ordinance of Measures,' detailing the length and breadth of an acre—*post*). In some old maps of manors that I have had access to I can trace the ancient rectangular figures as clearly as possible, though I can well imagine that in the majority of modern maps the open fields of old would no more show any sign of the 'squareness' of the big block than the manors or villæ in Yorkshire do at the present day after the absorption by assartation or otherwise of unallotted land intervening between the several blocks. If we could only group together the several fractions as they now exist, I have little doubt that they would be found to compose the bigger blocks that I have referred to. If reference is made to a map of Ireland, which sometimes shows the town-lands or old ballybetaghs ('food-paying units' of 4 quarters), it is plain that many of these town-lands are of the shape or form of 4 seisrichs or plough-lands, though not of mathematical straightness, and if three of them are placed side by side a rough square, as shown in diagram, *post*, would be produced. Though to King Alfred has been given the credit of grouping the country into tithings and hundreds, yet perhaps after all he only made use of a previously existing distribution of the land which had been before his time roped out on some definite principle into the larger units. The several manors in Domesday Book are arranged according to the names of the tenants *in capite*, &c., in the several

counties. We therefore do not get therein the number of hides and carucates in any one particular villa or place grouped together so as to enable us to say how many of the smaller units (hides and carucates, &c.) they respectively held, and it would require a great deal of local knowledge and labour to group them together now ; but there happens still to be in existence a MS., Cott. Tiberius A. vi., viz. the 'Inquisitio Comitatus Cantabrigiensis' (published by Mr. N. E. S. A. Hamilton, London, 1876), being the Inquisition of the Jury, containing their survey for most of the hundreds in the county of Cambridge, arranged in villæ, and not in tenancies *in capite*, from which it is possible, in regard to that county, to get to some extent the ancient grouping of Alfred, or the original distribution of the land before his time : some few pages are missing from the MS., but their contents I have supplied from Domesday, and the result is as follows :—

Out of 112 villæ or parishes there are 4 of thirty hides, 2 of twenty-five, 7 of twenty, 11½ of fifteen, 4 of twelve, 32 of ten, 2 of eight, 5 of seven, 28 of five, 6 of four, 1 of three, 2 of three and a half. It will be observed that more than half contain ten and five hides, and that there is no unit of six hides.

In some cases, by putting adjoining villæ together it would be possible still further to increase the number of fives, tens, fifteens, or twenties, and thus reduce fractions. I have ventured to do so in only one case, being a very prominent instance. One of the villæ of 25 hides I have made up out of the three adjoining villæ of Euresdone (Hamilton, 83) 8 hides + 40 acres, Chingeston (Hamilton, 85) 8 + 40, and Tosth (Hamilton, 87) 8 + 40, the original unit being evidently one compact whole of 25, or 2 units of ten and 1 of 5. It is to be noticed that 3 × 40 acres would make up 12 quarantenes, or 1 strip of 120 acres. Now a square leuga is an imaginary block of land of four sides, each a mile and a half long ; that is, 120 chains, or 7,920 stat. feet of 305 millimètres to the foot.

The contents of such a block, therefore, contains 1,440 statute acres. Ten units of 120 acres, 'Anglico numero' (see *post*), are 1,440 acres : so it is more than probable that in very many cases where a villa 'defends itself' for ten hides or carucates it contains 1,200 taxable acres + 240 'extra hidam' (see *post*, Anglicus numerus), and perhaps a further quantity if the land is 'wara,' i.e. the fallow untaxed, the sum total making up some multiple of 120. Moreover, in D. Bk. in a very large proportion of the manors of Yorkshire we have a statement giving the contents of the whole manor, i.e. the amount of the *geldable and ungeldable* land. The entries are in the following shape : 'Totum manerium una leuga longitudine et una latitudine.' 'Totum manerium dimidium leugæ longitudine et dimidium leugæ latitudine.' ' Totum una leuga longitudine et dimidium leugæ latitudine '— being 1440, 360, and 720 acres respectively, and so on. If an examination is made of these entries it is impossible to arrive at any other conclusion than that the land has been divided into groups of units of 120 acres, each twelve of which make, as we have seen, a square league, i.e. 10 × 144. Of these Yorkshire manors we find 42 manors of 2½ units, 96 manors of 5 units, 122 *manors of* 10 units *or a square league*, 17 manors of 15 units, 31 manors of 20 units, 5 manors of 30, and 12 of 40 units ; the absence of units of 6 and of 12 is noticeable, as it naturally would be where 5 meant 6 and 10 meant 12. This unit or square league is shown below. It is called an Anglican Leuga, and consists of twelve into twelve squares, each of 3,600 square poles of *feet*, whatever the foot was, or of 1,600 square poles of *cubits*, whatever the cubit was ; the *tenth* part of one of such squares of poles would be one acre, both it and its pole being totally unaffected by the lightness or stiffness of the soil. An acre would therefore be 360 square poles, i.e. 6 × 60 poles reckoned in *feet*, and 160 square poles, i.e. 4 × 40 poles reckoned in *sesquipedales cubits*. These remarks hold good in regard to

the decimal and duodecimal systems. But the large unit
might be a unit founded on the sexdecimal system, i.e. on
poles of 16 ; it would then consist of eight into ten plots of
2,880 square poles (=eight into eight squares, each of 3,600
square poles) of feet, whatever the foot was, or eight into ten
plots of 1,280 square poles of cubits of whatever the cubit
was, and the *eighth* part of such a plot would be an acre as
before.   A diagram showing this, i.e. the one (of the two
diagrams) marked 'sexdecimal,' is to be found in the remarks
on the Battle Abbey Leuga—*post.* I think, then, that the
acre is deduced from the larger unit, and that the latter is not
built up from multiples of the acre unit ; more especially as
the Ordinance of Measures 33 Ed. I. adapts the shape of
the latter to the necessities of cultivation arising from the
endless variety of the features of the ground within the leuga.
Moreover, I cannot find one instance in D. Bk. where a single
acre is used as a unit of measurement, and only one where
acres are mentioned in measuring at all, viz. Carswelle, in
Devonshire (D. Bk., fol. 104, col. 1.)—'V quarantenæ in
longitudine et XXX acræ in latitudine," i.e. 3 quarantenes
broad.   In order to explain the diagrams and the succeed-
ing ones, I give here a scale of rods.   As to the classical feet
and cubits, such as the *Royal,* the *Statute,* the *Olympian,* the
Egyptian, the *Drusian,* the *Scotch* or *Babylonian* (314–7 mm.),
I must refer my readers to Hultsch's 'Graechische und
Romische Metrologie' (Berlin, 1882), where that part of the
subject is exhausted, and also to Kelly's 'Cambist' (*post*),
which shows the different countries in which these feet and
their modifications are now used (see *post*).

SCALE OF RODS.

These rods represent rods of *sesquipedales* cubits and of
feet.   If a rod of feet was used the measurers would, as a
rule, drop the rod 6 times for the base of the acre ; if a rod
of cubits (1½ ft.) was used they would drop it 4 times only.

Columns (left to right): A B C D E F G H I K L M N

No. of 'feet' and 'cubits.'	A	B	C	D	E	F	G	H	I	K	L	M	N
	10	11	12	14	12	13	12	13½	18	9	12	16	2

A Drusian rod   of 10 ft. of ·334m. =3·34m.
B Statute rod   of 11 ft. of ·304m. =3·34m.
C Anglo-Sax. rod   of 12 ft. of ·279m.†=3·34m.
D Rod   of 14 ft. of ·304m. =4·26m.
E Rod (of Royal feet)   of 12 ft. of ·355m. =4·26m.
F Westmoreland rod   of 13 ft. of ·3408m.=3·96m.
G Rod   of 12 ft. of ·330m. =3·96m.

H Paladr of N. Wales of 13½ ft. of ·304m.=4·10m.
I Dynval's rod   of 18 ft. of ·228m.=4·10m.
K Gad   (Llathen Gyvelin)   of 9 ft. of ·304m.=2·73m.
L Gad   of 12 ft. of ·228m.=2·73m.
M Dynval's long Yoke of 16 ft. of ·228m.=3·64m.
N Duodecimal rod   of 12 ft. of ·304m.=3·64m.

† Osnaburg foot, which is the 'step foot' of ·335. See Appendix, pp. 365 and 373.

The rods marked * are of statute measure ; the rod standing next each of these, being of equal length, was most probably the real rod that was used originally. H perhaps also the Irthling-borough shaft.

NOTE.—The statute foot is ·3048 m. The rod D is the one on which the Irish, Welsh, and English acres of 7,840 square yards are built on or the alternative duodecimal rod marked E. In addition to these rods, there is the 16-feet rod of the foot of 304 mm. and a 'gad' of half its size. Also a rod of 18 statute feet (a double gad), being in length 24 'feet' of ·228 mm. (Dynval's 'foot '), on which the Anglesey acre is built. The 16-feet of ·3048 is a decempedal rod of Genevan feet of ·4876 m., and the English ell of 1·14 m. is also the Genevan ell. The 18-feet-statute=the *double* gad of 24 of Dynval's 'feet' of ·228 m.

An Anglican Leuga.

Each side = 7,920 of the stat. foot, 304 mm.
or = 7,200 of the foot of 334 mm.
or = 8,640 of the foot of 279 mm.

A   B   C

D
10   E
                                                                         12

The Leuga might be
distributed into any
number of Quarantenes,
stadia, or stadiales agris
from 1 to 144. In the
Appendix I have taken
1 as the unit.

AA   BB   CC

The whole leuga is composed of twelve imaginary strips (each of 120 acres), like those shown above, and, for purposes of illustration, we will suppose them equal in area.

Each of the strips A, B, C, is composed of 12 ('stadia'; see Ducange, *voc.* ' Leuca gallica') quarantenes or squares of ten statutory acres each, but they are not drawn to scale, as E represents 12 acres, and D, AA, B B, and C C represent 10 acres, each individual acre (in E as well as in D, &c.) being, however, identical in area ; so there would be ten plots of E in column C, and 12 plots of D in column A.

The rod or pertica on which A is built up is one of 10 feet of 334 mm. = 3·34 mètre. The Chinese 'mathematical foot' is the same foot. It is the Drusian foot of 18 digits used by the Tungri. See Hultsch, pp. 526, 572, and 693.

The rod on which B is built up is the statutory rod of 11 feet of 304 mm. = 3·34 mètre.

The rod on which C is built up is of 12 feet of 279 mm. = 3·34 mètre. This foot is the same as the Osnaburg foot, and the rod is the same rod as the rod of 3·34 m. first mentioned, but divided into 12 divisions or feet, thus producing the Osnaburg foot of ·279 m.

All these rods are exactly equal in length, though differently divided into 10, 11, or 12 parts, thus producing different feet.

There would therefore be 60, 66, and 72 *ten*-feet rods *of their own respective feet* on each side of A A, B B, and C C, or 600, 660, and 720 respectively (360,000, 435,600, 518,400 square feet; 40,000, 48,400, 57,600 square yards). If we now suppose that each of the quarantenes was a virgate of 10 acres, they would all be equal in area, though owing to the difference of feet there would be a difference in the *number of ten-feet rods.* The statute pole of 11 *feet* (6 × 11 = 4 × 16½) was designedly meant, I think, to hold a middle position between the decimal and duodecimal system on either side of it; and as we are dealing with a time long before any statutory declaration on the subject, it is not necessary to make further calculations based on the rod of 11 statutory feet of 304, though that foot is as old as any, and is the foundation of the equally old rod of 16 feet or cubits. It will be noticed that by the addition of ½ a foot to an old (?) 16-*foot* rod of 304 mm. to the foot, and with *four falls* instead of six of such a rod, the three acres are brought into unison with the Statute.

Dealing now with the 10-foot rod of 334 mm. to the foot,

the square leuga would consist of 51,840,000 square feet, or 5,760,000 square yards ; the square root of this gives 2,400 ; six-tenths of this number is the number of acres (1,440) in the square leuga with 4,000 square yards to the acre, being the Devonshire acre in number=4,840 statute yards : the Devonshire acre is the only one that I know of that appears to be built up on a *decimal* rod of ·3048 m. to the foot, and of 4,000 square statute yards. This rod or gad of 10 statute feet was in use in Lincolnshire (2 Stone, 394), and a double gad of 20 feet was in use in other places for other purposes. The duodecimal rod of 12 statute feet will be shown later on to be a really a 16 'foot' rod of 228 mm. Going next to column C (which, I presume, was Anglo-Saxon) and reckoning in its foot of 279 mm., and counting in the long hundred, there would be 8,640 feet on each side of the leuga, giving a total of 74,649,600 square feet, or 8,294,400 square yards ; the square root of this is 2,880 ; *five*-tenths of this number is 1,440, and the number of acres in the square leuga with 5,760 square yards to the acre. Thus in precisely the same area there would be 6 units of 240 or 12 of 120, as against 5 of 288 or 10 of 144. If, then, taxation was imposed by units irrespective of area, in the one case we should have 6 or 12 geldable units under the one system as against 5 or 10 under the other. Any statement, then, that a place contained 5 units, and was taxed at that rate, might really on examination be found to indicate 5½ units in actual area. I shall deal with this more fully afterwards, but a partial explanation is necessary now.

In the above illustration I have *one* quarantene or stadium to make up one decimal virgate of 10 acres, but of course more quarantenes or acres might be taken to make a virgate, such virgates being decimal or duodecimal or sexdecimal according to the system followed. This would be done by the division of the strip or the quarantene by 8, 10, or 12. We

shall also see that the *same* block of land (being a quarantene) divided by 12 gives 12 acres of one size; when divided by 10, gives 10 acres of a different size; when divided by 13, gives 13 acres of a different size; and when divided by 14, gives 14 acres of a different size, these last two cases being the course adopted on the adoption of a different foot, but all going to prove that the larger unit was not built up from an agglomeration of smaller units, but that the smaller unit was derived from the particular way in which the larger unit was subdivided, such subdivision thus accounting for the 'countrye measure' found in certain places. So, too, the Babylonish stadion, or '2-minute way' of a stout walker (189 m.), divided by 360 (the sun's course) gave to the Babylonians their ell of 525 millimètres, and their 'quanu' or rod of 6 of such ells (3·150) divided by 10 gave them the brick of ·315 which (see Kelly's 'Cambist') is practically the Rhineland and Scotch foot (Hultsch, 'Metrologie' [Berlin, 1882], pp. 380–391. See also pp. 496, 497), and a square of 12 × 12 square stadia divided by 10 × 10 gives a square of 10 Scotch acres. If the rod was duodecimal, or sexdecimàl, the quarantene and the larger units also would be, i.e. in the duodecimal system 48 decimal perticæ of cubits, or 12 acres instead of ten, and in the sexdecimal 64 decimal perticæ, or 16 acres instead of the ten and the twelve acres. The Anglo-Saxons reckoned twelve as only ten, so the strip c they would divide intò 10 plots of 12 acres (E) instead of the 12 plots of A of 10 acres (D). By adding two more acres to CC it would equal E, and with the other nine plots of the strip make up the 10 plots of 12 acres each of column C. Treating each of the 12 strips of the leuga in the same way, the Saxons would get 120 virgates of 12 acres each, as against 144 virgates, each of 10 acres; that is, they would have *five* hides of 288 acres, as against 6 hides of 240. In the one system the leuga would be taxed at five pounds, and in the other at six pounds.

The Anglo-Saxons would object to being taxed at more than 5, and if the objection succeeded, 240 acres would clearly be 'extra hidam.' J. Michelet, in his 'History of France,' Book 2, chap. i., states (without giving his authority) that the Saxons refused to join the Lombards because their military divisions were in *tens* and *hundreds*. The same principles would hold good as to taxation founded on carucates and carucæ, and if the Saxon pound of 288 pence equalled in weight one Norman pound of 240 pence only, the reason of the objection is obvious.

If the whole of the square leuga was arable land in single ownership it would be taxed as ten or twelve units, but if the arable land when in fallow 'lay in common,' 'jacet in communi,' then, as we shall see, it was called 'wara,' and the taxation would be just one-half if in a two-course and two-thirds if in a three-course. So, too, if half of it consisted of *common* silva or pasture, but if such silva or pasture 'lay in several,' 'jacet in separali,' it would be subject to taxation, and perhaps in some places for subdivision in regard to wood and pasture a longer pole would be used as between lords and their men ; but I think there can be no question that, as regards the larger units, such as leagues and hides, the ropes and chains and the perticæ were based on some uniform but well-founded proportion, decimal, duodecimal, or sexdecimal, quite irrespective of the tenacity of soil or the whims and wishes of those having control of the measurement. It is absurd to suppose a league or a mile should be long or short according as the soil was stiff or light over which the chain was lugged. The further subdivision of the acre for practical purposes (as to arable land) must have been made on very careful calculations suited to the shape and figure of the land within it, so as to secure the proper size of the acre fitting in as it does to the larger unit. The stat. 33 Ed. I. c. 6, which gives the length of the inch, the foot, the yard,

and the rod (as we have them now) gives also calculations showing the alternative lengths and breadths of an acre, and in doing so it gives, no doubt, the proportions of the acre which had been in use, whatever the foot was.

The following is the list. (The statute says that when the *length* of the acre was of the number of perches shown in column A, then the *breadth* was to be that in column B):—

A	B			A	B		
Perches	Perches	Feet	Thumbs	Perches	Perches	Feet	Thumbs
Length 10	Breadth 16			Length 46	Breadth 3⅓	0	2
11	14½	1	5	47	3¼	2⅓	1
12	13¼	1	1½	48	3¼	1	3½
13	12¼	1		49	3¼	0	3
14	11¼	1	1½	50	3	3	2½
15	10½			51	3	1½	4
16	10			52	3	1	3
17	9¼	2½	1½	53	3	0	3
18	8½	2	1⅓	54	2¾	3	4
19	8¼	2½	4	55	2¾	2½	1
20	8			56	2½	2	3
21	7½	2	3	57	2½	1	2
22	7¼	0	5	58	2½	½	
23	7¼	0	4	59	2½		
24	6½	2½	2	60	2½	3	
25	6	2	5	61	2½	1½	
26	6	2		62	2½	1	4
27	5¾	2½	1	63	2½	0½	5
28	5½	0	4	64	2¼		
29	5¼			65	2¼	3½	4
30	5¼	2¼	1	66	2¼	2½	4
31	4¾	6½	1	67	2¼	2	0
32	4½	3	3	68	2¼	1½	1
33	4½	2	5	69	2¼	1	5
34	4½	3	3½	70	2¼	½	3
35	4¼	1	2	71	2¼	0	3
36	4¼	3	1	72	2	3½	1
37	4¼	1		73	2	3	2
38	4	3	5	74	2	2½	1
39	4	2	2	75	2	2	0
40	4			76	2	1½	3
41	3¾	2	5	77	2	1	3
42	3¾	1	2	78	2½	0	2
43	3¾			79	2	0	4
44	3½	2	0	80	2		
45	3⅓	1	2				

The former three examples of leugæ are cases where the

number of acres is exactly the same in the same area, and the area of each acre also the same, but with the number of square yards differing in each acre.   The following, relating to the Irish acre, is a case of three separate units covering the *same* area with a different *number* of acres in one unit, and each acre containing a different *number* of square yards, based on the same *number* of feet in the rod, but with the foot itself differing in the rod :—

<div align="center">

8,640 feet of ·355 m.
10,368   ,,   ·296 m.
10,080   ,,   ·3048 m.

</div>

<div align="center">

1,440 acres of 5,760 yards of 355 mm. to foot.
1,440   ,,   7,840   ,,   304   ,,
1,680   ,,   6,720   ,,   304   ,,
Ten hides of 144
= Ten hides of 168
or
Twelve hides of 120
= Twelve hides of 140.

</div>
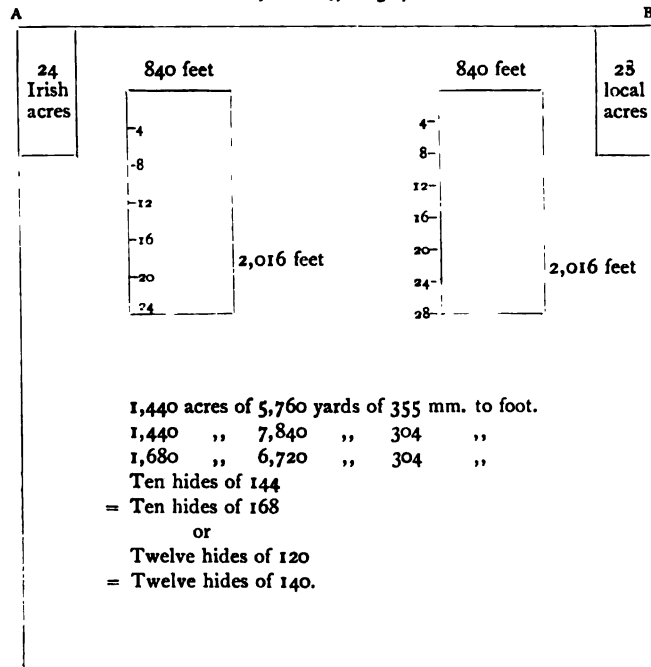
From A to B and on each side of the unit is a length of 10,368 feet of 296 mm. (864 duodecimal rods of that foot), or 10,080 feet of 304 mm. (720 rods of 14 stat. feet), or 8,640 feet of 355 mm. to foot (720 duodecimal rods of that foot). The above area is therefore either a unit of 1,440 acres,

contained in 12 strips, and each strip of 10 quarantenes, each acre consisting of 51,840 feet of 355 mm. (5,760 square yards), or a unit of 1,440 acres, also in 12 strips and 10 quarantenes, each acre consisting of 70,560 statute feet (304 mm.), —that is, 7,840 square yards (Irish acre). The quarantene

4·26 m. = rod of 12 feet of 355 mm.

Rod of 14 feet of 304 mm. (statute) = 4·26 m.

See *post*, Appendix, p. 384, Erfurt in last table. The rod of 14 coincides with the middle hundred in *weight*, so it would well fit in to renders made in 'stones,' &c., of 14, 28, 56, 112, of the different articles rendered.

Left scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

Right scale: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 (with inner column 1, 5, 6, 7, 8, 9, 10, 11, 12)
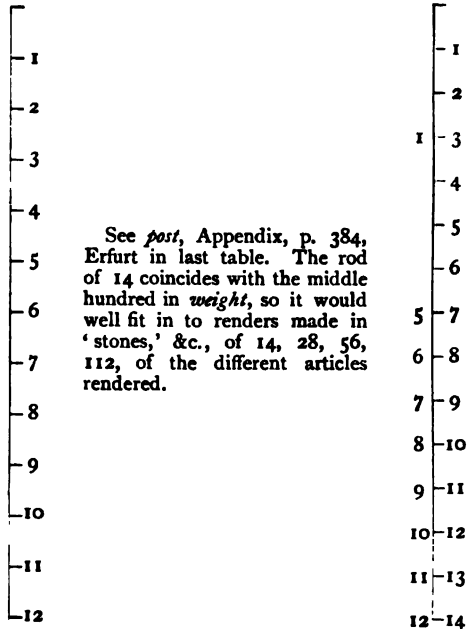
divided by *twelve* would give the acre, and two quarantenes would give a virgate of 24 acres. *But* by dividing the quarantene by *fourteen* the length of an acre would be 70 rods of 12 feet to the rod, and the base 6 rods of 12 statute feet of 304 mm. to the rod, and we should have 1,680 acres of 6,720 yards of 304 mm. to foot, or 12 ploughlands of 140 acres each, as in some parts of Ireland (see Carew MSS. at Lambeth Palace, vol. 607, p. 125); each virgate of 24 Irish acres would therefore equal 28 local acres of 'countrye

measure.' The above unit of 1,680 acres would thus contain 60 virgates of 28 local acres, or 60 virgates of 24 Irish acres= the acres of 5,760 yards based on the foot of ·355 mm. This is exactly the case of Weston in Huntingdonshire (see H.R. vol. ii. fol. 629), where the hide is said to contain 168 acres of 6 virgates of 28 acres to each. There are 10 such hides in D. Book taxed at 1,200+480 'extra hidam'; and where a virgate of 28 acres appears, I have little doubt that it may be accounted for in the same way—that is, by dividing the *original* quarantene by 14.

By another diagram of exactly the same area, and built upon the decimal rod of the 'Royal' foot of ·355, divided into 12 feet of ·296 (= 10 feet of ·355 m.), it is possible to explain the Celtic arrangement in Ireland made by a people who divided their money and pole duodecimally. At page 355 of vol. v. of the Brehon Laws the 'Tircumhail,' or land of a female slave (i.e. a virgate), is stated to be composed of 12 feet to a fertach (pertica ?), 12 fertachs to a forrach (rope), and 6 ropes to the breadth of it, with a length stated at page 276 of vol. iv. to be 12 forrachs : thus a tircumhail would be 1,728 feet long (two quarantenes, i.e. 2 × 864) by 864 wide, and is shown below. A twenty-fourth part of it would be an acre : the acre would thus be 72 × 864 feet, and would consist of 6,912 square yards, just as the Celtic pound is shown to consist of 6,912 grains. The square, when divided into strips of ten quarantenes, as in the preceding diagram, with a foot of ·3048 m., or with a foot of ·355 m., would give the results as already shown, i.e. 1,440 acres (Irish), or 1,680 local. The same square, however, being divided into 12 strips, *and each strip into* 12, *not* 10, *quarantenes, and each quarantene into* 12 *acres*, each strip would consist of 6 tircum- hails (or virgates), and be 144 acres of the foot of ·296 m., or 140, as mentioned below. So there would be in exactly the same area 1,728 acres of 6,912 square yards, each of ·296 m. to the foot, as against 1,440 acres of 7,840 square

yards (Irish acre) of ·3048 m. to foot, or 1,680 of the local acres of 'countrye measure.' It will be noticed that by dividing the Celtic quarantene of 12 acres by *ten* instead of 12 we get the Irish acre of 7,840 statute yards of the foot of ·3,048 m., i.e. the acre of 5,760 yards of the Royal foot of ·355 m., and by dividing it by 12 we get the local acre of 70 × 840 statute feet, which equals the Celtic acre of 72 × 864 of ·296 m. An interesting question remains both in England and Ireland, viz. in those places where the acre of 7,840 statute yards of ·3048 m. to the foot appears, who were the first in occupation—those who used the foot of ·355, or those who used the foot of ·3048 ? I think that there is little doubt that the ·355 and the ·296 were the first. The ·296 foot is the Swedish and Embden foot. It also appears elsewhere ; see Erfurt in Appendix and the cloth ells, p. 384.

10,080 statute feet.
8,640 feet of ·355 m.
10,368 ,, ·296 m.
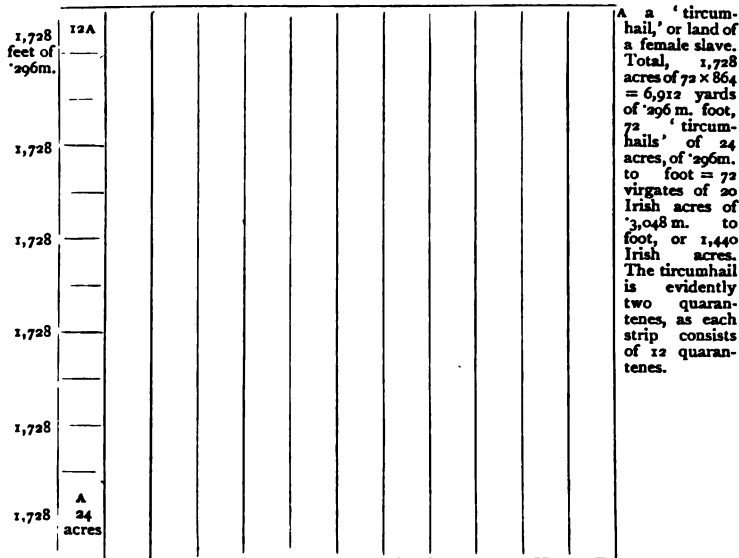
	12A										A a 'tircum-hail,' or land of a female slave. Total, 1,728 acres of 72 × 864 = 6,912 yards of ·296 m. foot, 72 'tircum-hails' of 24 acres, of ·296m. to foot = 72 virgates of 20 Irish acres of ·3,048 m. to foot, or 1,440 Irish acres. The tircumhail is evidently two quaran-tenes, as each strip consists of 12 quaran-tenes.
1,728 feet of ·296m.											
1,728											
1,728											
1,728											
1,728											
1,728	A 24 acres										

12)864 feet of ·296 m. = 720 of ·355 m. = 840 statute feet.
12) 72 fertachs   See Russia, Appendix, p. 383.   The tircumhail contains exactly
    6 forrachs   12 Russian Dessetina.

In the same way, and from the foot of ·350–7m., the Welsh acres, or erws, mentioned in the Appendix to Government Report of 1820, are deduced.

Government Report, p. 26.

No. 3. The bat, or Eglwshaw, of 9,384 square yards
= 84,456 sq. feet = 91·9 × 919 statute feet of ·305 m.
= 80 × 800 of the foot of ·350 m. (see Hultsch's 'Metrologie,' 1882, pp. 526–613), being the foot of a Babylonish or Egyptian *sesquipedalis* cubit of ·525 m.

11,028 statute feet of ·305 m.
9,600 Royal feet of ·350 m.

1.440 acres
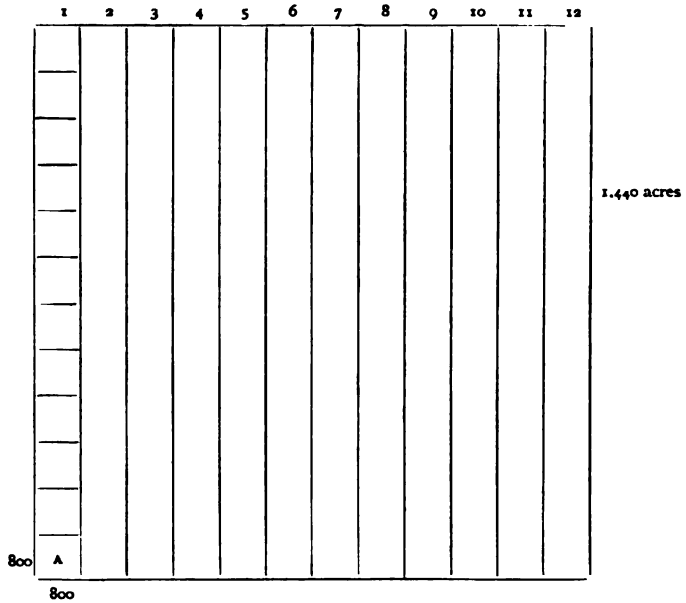
A 919 × 919 of ·305 m. = 800 × 800 of ·350 m.
  6,400 square rods of 11·49 stat. feet, or 6,400 square decempedal rods of ·350 m. to foot.   One tenth of A is one acre of 640 square rods, *i.e.* 8 × 80 rods.
  This acre was the customary acre of the Hundred of Dau-gledden in Pembrokeshire.

No. 3. Appendix to Government Report, 1820, p. 26.

The following is an acre out of just the same area as the immediately preceding one, and it will be readily seen how the different acre is obtained by dividing the square into 10 strips instead of 12.

P. 26. The acre of 11,261 stat. yards (put at page 15 as 11,284 square yards, 4 × 2,821), but really 11,264 = 101,376 square feet, *i.e.* 91·9 × 1,103 stat. feet of ·305 m.

11,028 statute feet of ·305m.
9,600 Royal feet of ·351m.

1,200 acres
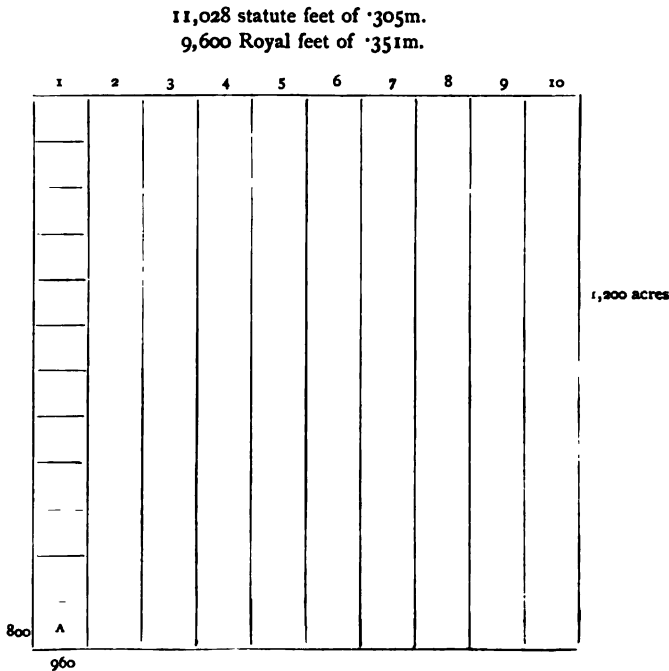
A 919 × 1,103 of ·305 m. = 800 × 960 of ·350 m.

768 square rods of 11·49 stat. feet, or 768 square decempedal rods of ·350 m. to foot.

12 quarantenes of 7,680 sq. rods, $\frac{1}{10}$ of a quarantene of 768 square rods of 3·50 m., is the acre. Perhaps the strip should be divided into 10 quarantenes of 960 × 960, and one *twelfth* the acre of 80 × 960.

This acre was to be found in Glamorganshire.

Appendix to Government Report, p. 26.

No. 4. 11,776 square stat. yards = 105,984 square feet
divided by 768 (4 × 192) = 138 square feet:
11·75 × 11·75 = 138·0625.
(8 × 11·75 =) 94 × ·304 m. = 28·57 m. = 80
× ·357 m. = 28·56 m.

11,280 stat. feet of ·3048 m.
9,600 Royal feet of ·357 m.
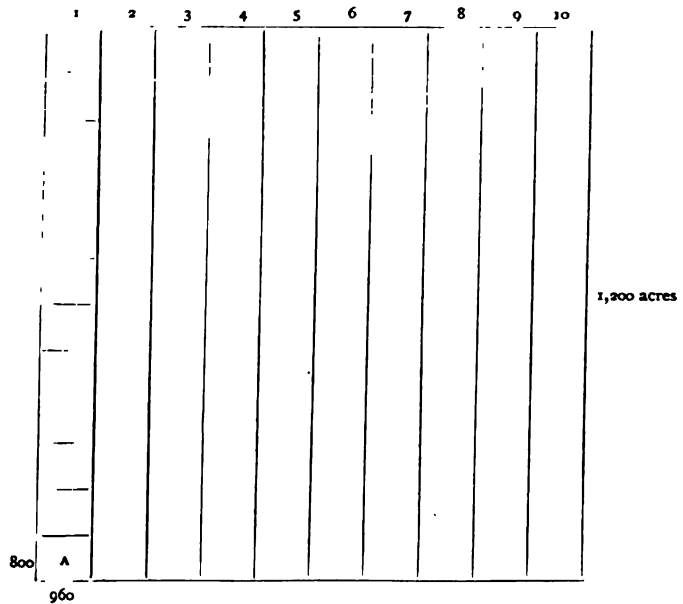
Block A 940 × 1,128 of statute feet ·304 m. = 800 × 960 of ·357 m.; $\frac{1}{10}$ of this
is the acre 11,776 statute yards.   The block would consist of 80 × 96 poles
= 7,680 square decempedal poles of ·357m. to foot, $\frac{1}{10}$ of which would be
the acre.   Perhaps the strip was divided in 10 quarantenes, and the 12th
part taken as an acre, as suggested in the last diagram.
This acre was the customary measure of the North of Glamorganshire, and is
there called erw ferthyr Tudful-erw uan Vabon, &c.   .

The next diagram is one of the same nature, and refers to
the Lothian and Westmoreland oxgang or bovate of 13 acres,
though really 12 acres.

[Note.—In Rhineland, &c., many places have a ' common ' foot of ·282–9 m.,
as well as the Babylonish and Scotch measure of ·313–6. See each place in the
text of Kelly's ' Cambist ' ; note also the *cloth* ells.]

8,640 feet of ·314 m. to foot (Scotch and Lindau Rhineland foot).
9,360   ,,   ·289 m.   ,,   (Lindau common foot).

A   B

C

D

(Not strictly drawn to scale : five
   rows of three ploughgates)
There are 15 ploughgates in this area,
      viz.   ,,   ,,   of 96 acres of ·314 foot
        =   ,,   ,,   of 104   ,,   ·289 ,,
   Area, 1,440 acres of 5,760 yards of ·314m. to foot
      = 1,560   ,,   6,240   ,,   ·289m.   ,,
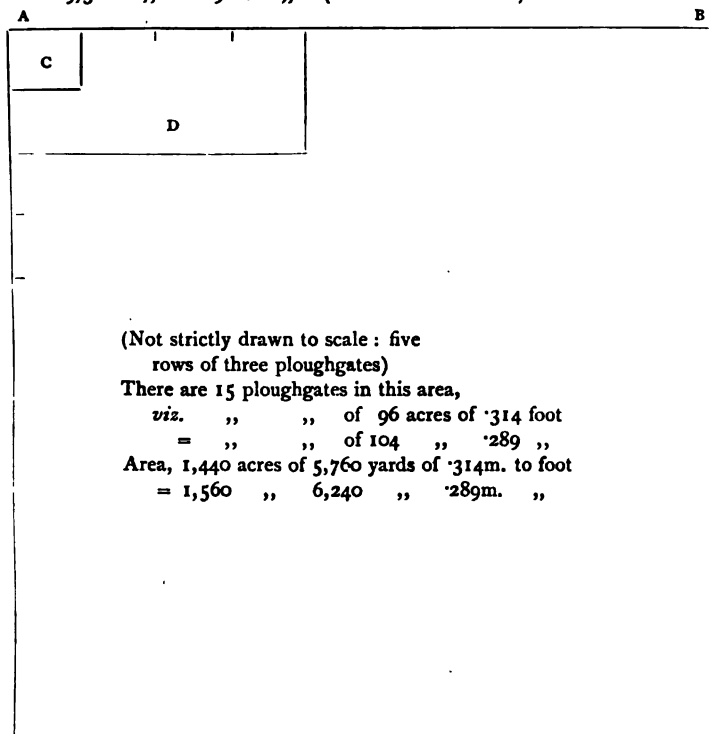
From A to B and on each side of the above diagram is
8,640 feet of 314 mm. to foot, or 9,360 feet of 289 mm.,
that is 720 duodecimal rods of 314 mm., or 780 rods of
12 feet of 289 mm.   The area therefore contains, reckoning
in duodecimal rods (the leuga being divided into 12 strips,
the strip into 10 quarantenes, and the quarantene into 12
acres), 1,440 acres of 5,760 square yards of feet of 314 mm.
to the foot.   But by still keeping to duodecimal rods, and
by dividing the quarantene by *thirteen* instead of *twelve*, an

acre would be produced with the length of it as of 65 rods of
12 feet of 289 mm. to the foot, and the base of it as of 6 rods
of 12 feet of the like foot, and we get 1,560 local acres of
'countrye measure' of 6,240 square yards of feet of 289 mm.,
and thus there would be 15 ploughgates, each of 8 oxgates,
each of 13 acres of 6,240 yards.   Both of these feet are used
at Lindau, the latter being called the 'common foot,' and
the 314 mm. the long foot (as to which see Hultsch's 'Metro-
logie,' 1882, pp. 390, 496, &c.).   The foot of ·315 m. was the
tenth part of a rod of 6 Babylonish ells of ·525 m.; 6×525
$= 3·150$ (Hultsch, 390).   The old common foot was adopted by
the ancient Scotch declaratory stat. to be found in the 'Frag-
menta collecta' at the end of the first vol. of Scotch statutes
in these words: 'Perticata terræ in baronia debet mensurari
per sex ulnas quæ faciunt XVIII pedes mediocres, hoc est
neque de majoribus neque de minoribus; perticata terræ in
burgo continent viginti pedes mediocres.'   Four rods of 18
feet = six of 12 feet.   C represents an oxgang of 13 acres
of 6,240 square yards of 289 mm. to foot, or 12 acres of
5,760 square yards of 314 mm. to foot.   D represents a
'ploughgate' of 8 oxgangs.   This arrangement of measure-
ment was made in very ancient times, as appears from the
same statute (Scotch), vol. i. p. 387: 'In the first time that
the law was maid and ordanit they began at the fredome
of halikerk, and syne at the mesuring of landis the plewland
thai ordanit to contene VIII oxingang and the oxgang shall
contene XIII akeris.'   It was a compromise, in fact, between
the rod of the foot 314 mm. to the foot and the rod of 289 to
the foot.

The Westmoreland units of oxgangs and acres can be
equally well illustrated by the last diagram.   We know what
the Westmoreland acre is, viz. 6,760 square yards; this gives
a duodecimal rod of 12 feet of 330 mm., or a rod divided
into thirteen feet of 304 mm. to the foot, the base being

72 of the one foot or 78 of the other, and the calculation as above.

We have not many opportunities given to us by ancient MSS. in *Great Britain* of ascertaining the details of these larger units, or the way in which they were built up, but I can give three instances in which it is possible to do so, one being that of Battle Abbey in Sussex, another in South Wales, and the last in North Wales.

The MS. (Cott. Domitian A ii. folio 14) says, ' *The Church of Battle holds around itself one leuga* ' (it then gives the locality of the several virgates, &c., and continues) : ' *Total six hides and half a virgate* ' (hide ?). ' *All these lands are within the leuga, as it is said, and of these the leuga itself is composed, which the Church of Battle possesses, which also King William freed from every land custom and service, and from every subjection to the Bishops, and more especially the Bishop of Chichester, &c.* ' ' *Eight virgates then make one hide, but a wista is contained in 4 virgates ; but the Anglican leuga* (i.e. in length) *is made up of 12 quarantenes, and a quarantene of 40 perticæ. A pertica has of length 16 feet. An acre has in length 40 perticæ, and 4 in breadth, but if it should have 20 in length, then it shall have 8 in width, and so on.* ' In passing, it is worth observing that the word ' wista ' probably is the same as the Welsh or British word ' guesta,' meaning the amount of food or money in lieu of it, &c., payable to the lord of the manor ; if this is so, then 4 out of the 8 virgates in the Battle Abbey hide paid it ; in other words, supposing the hide to be in a two-course shift, like the Roman jugerum (2 acti), all the taxation for the year would be placed on sown land. See more fully as to this, *post*. These virgates and hides belonging to Battle Abbey in D. Book are shown under different villæ or manors, Bece, Wasingate, Wilminte, Nirefield, Peneherst, Hov, Pilesham, Cedesfield, Bollintun, Croherst, Witinger, and Holnitun, and there is nothing to

lead us to suspect that these several manors when collected together make one square league. The Cottonian MS., however, lets us behind the scenes, and I have little doubt that the greater part of England might be regrouped into the original rectangular plots, as suggested by me (*ante*), had we only the materials for doing so, as we have in regard to Battle Abbey. Compare the interesting map of Wymondley in Mr. Seebohm's 'The English Village Community,' p. 432, *without* the *triangle* at the junction of Graveley, Wymondley, and Baldock.

COTTONIAN MS. DOMITIAN A. II. FOLIO 14; DOMESDAY BOOK, Vol. I. fol. 17 *b*.

Leuga at Battle Abbey.

6 hides of 240 acres 48 virgates.

15 × 64
A 960 feet.   7,680 feet A to B.   B

2 ×   15
640 =   1 virgate
1,280   30 acres
feet   15
A to C

4 virgates = 120 acres
1 wista

1 hide 240 acres

96 plots of 15
acres each
of 64 × 640
in the sq.
leuga.   8
× 15 =
120.

Hides of *wara*, i.e. fallow not taxed.

I have first of all assumed that the above is an Anglican square league: the acre being 4 falls of 16 feet into 40 falls, the total area is 40,960 square feet ; 7,680 squared is 58,982,400 square feet, this divided by 40,960 gives 1,440 acres to the square leuga of Battle Abbey; 240 acres to each of the 6 hides, and 30 to each virgate, and 4 virgates to each wista ; the pole is stated to be 16 feet, but as the MS. speaks of the *English* league of 12 quarantenes, and if it really was an 'English league,' it will be found that each of the 12 quarantenes of 640 x 640 would contain ten acres : a rod of 16 Rhineland feet = 16½ of ·3048—that is, the statute rod.

In Domesday (vol. i. fol. 17 b) the entry in regard to this leuga is this:—' Ipse Abbas *habet in suo rapo* VI hidas et dimidiam.   Hanc terram pro VI hidis se defendit et dimidia fuit quieta *quia foris rapum.*'

We seem thus to understand that the league was measured with a rope, and that perhaps the *rapum* was another name for the league.

The measurements were not strictly in the sexdecimal system, which obtains in conjunction with 6 falls of the pole of 16 feet, or 4 of 16 *cubits*, caused by dividing the big unit as well as the quarantenes by eight, or the halves of those quantities.   Supposing the acre to have been built up of 3 x 30 falls of 16 feet, there would have been 10 *hides* or units of 256 acres, of 2,560 square yards to the acre, in the above square leuga, and if the acre had been built up of 6 x 60 falls of 16 feet there would have been 2½ hides of 256, or 5 of 128 Cheshire and Lancashire acres of 10,240 square yards, with virgates of 16 or 32 acres ; and from the singular way in which allusion is made to an English leuga, and from the statement that that consisted of 12 quarantenes (a statement which certainly would be unnecessary if this Battle Abbey had always been set out on English lines), I think it most prob-

able that one or other of these combinations originally built up this league, and that it was fitted in by simply reducing the number of falls from 6 to 4 of 16 *feet*.

I have shown the combination of 5 hides of Cheshire acres of 10,240 square yards to acre of 128 to the hide in this diagram.

SEXDECIMAL.

7680 feet.

This acre of 10,240 square stat. yards is to be found not only in Cheshire, Westmoreland, Lancashire, Yorkshire, Derbyshire, and Ireland, but it is the customary acre of Dèwisland, Kenmaes, and Kilgaron in Pembrokeshire, the south of Cardiganshire, parts of Carmarthenshire and Glamorganshire.   In the latter it is called ' Erw llan Giwg.'   Four of these blocks together make one square of 10 hides of 256 such acres each, or 20 hides of 128.

The Genevan foot is ·4876 m. (sixteen tenths of 3048).   A stadium or quarantene of 600 of these feet would equal 960 statute feet, and a 16-foot rod of statute = a decempedal rod of ·4876 m.   Can it be that this last foot is the real foundation of the Cheshire, &c., acre?   See p. 288.

A league of feet=a mile of cubits.   The diagram (not strictly drawn to scale) represents the same area as the previous one, and consists of eight strips like BB, and of 5 hides of 128 Cheshire acres of 10,240 square yards to the acre, i.e. 92,160 square feet or 2½ hides of 256 of the like acres.   The strip BB consists of 10 quarantenes ; the *eighth* part of such a quarantene is an acre.   Strip BB, therefore, consists of five

virgates of 16 Cheshire acres of 96 × 960 feet. There would be 80 of such acres altogether in each strip (8 × 10); so there would be 8 × 80 = 640 acres altogether—that is, 5 of 128, or 2½ of 256. By dividing the leuga into 12 strips, and each strip into 8 quarantenes the fifteenth part of which would be an acre, or into 12 quarantenes the tenth part of which would be the acre, and thus simply reducing the number of falls of the pole from 6 to 4 as to feet, and to 2⅔ if of cubits, we get an acre of 40,960 square feet, and, as shown in the preceding diagram, 1,440 of them in the square leuga, which would fit in with 6 pounds of 15 oz. of 16 pence of 32 wheat grains already referred to, being Ethelred's pound = 12 oz. of 20 pence of 32 wheat grains, i.e. 7,680 wheat grains.

SOUTH WALES.

Venedotian Code, Book II. chapter xvii. s. 2. 'After that Howel the Good enacted new laws, and abrogated those of Dynval; *yet Howel did not, however, alter the measurements of the lands in this island, but continued them as they were left by Dynval: because he was the best measurer.*'

S. 5. '*And that measure Dynval measured by a barleycorn; three lengths of a barleycorn in the inch; three inches in the palm-breadth; three palm-breadths in the foot; three feet in the pace; three paces in the leap; three leaps in a land (the land in modern Welsh is called a ridge); and a thousand of the lands is a mile.*'

(*Note.*—This 'foot' is proved, *post*, to be ·2286 m., the statute foot being ·3048 m.; an 18-foot rod of stat. feet would therefore equal 2 *rods* of the 'foot' of ·228 m. with 12 *feet* to the rod; or two rods or 'llathen gyfelin' or 'gads' of nine statute feet each.)

Gwentian Code, Book II. chapter xxxiii. s. 2. 'There are

r 2

eighteen feet in the rod of Howel the Good ; and eighteen such rods are to be the length of the erw, and two rods in breadth.'

S. 3. 'Three hundred and twelve erws, according to that, are to be in the randir, between clear and brake, wood and field, and wet and dry ; except a supernumerary trev the upland has in addition.'

S. 4. 'There are to be thirteen trevs in each mænol, and the thirteenth of these is the supernumerary trev.'

S. 5. 'In each free trev with office and free trev without office there are four randirs ; three for occupancy, and the fourth pasturage for the three randirs.'

The 12 erws over and above the 300 are to be for space for buildings, so that the owner might have 300 for occupancy in the way of arable, pasture, and fuel wood. (Gwentian Code, Book II. chap. xx. s. 7.) (See diagram on next page.)

The *duodecimal* rod of 228 mm. to the foot, or nine feet of 304 mm. (statute) is extremely old, and was and is to be found all over the country. The Government Report on Weights and Measures of 1820 calls it the ' Old English Ell,' and speaks of it under the word ' Llathen Cyvelin ' and ' Pared.' In other parts of the country it is called a ' gad ' or ' goad.' A friend of mine (Mr. W. C. Little, Assistant Commissioner to the Royal Commission on Agriculture) thus speaks of it to me : ' *We always used a staff called a "gad" of 9 feet. It was nearly round, and tapered from the middle to each end. The measurer took hold in the middle, laid it nearly on the ground, rested the point very lightly, and turned it over. In this way a good hand would measure nearly as quickly as an ordinary person would walk.*' Mr. Little speaks of the country bordering on Norfolk and the Isle of Ely. But it was in use all over the country, and was the foundation of the Lancashire acre of 9,000 sq. statute yards, i.e. 90 × 900 stat. feet of

900 erws, or 3 randirs of land 'in occupancy.'

3,240 'feet' of 228 mm. = 3 × 30 × 36.

Note.—
*Not
drawn to
scale.

*10 erws

A
1080 × 1080
of the foot of
·228 m., 100
erws or squares
of 11,664 sq.
feet (36 × 324)

A length
of
3,240 feet
decimally
divided
into 324

A
i.e., 40 acres
of 54 × 540, or
160 roods or
'lands' of 27
× 270 of
·228m.

Total :
10,497,600 sq.
feet of 228mm.
to the foot =
1,166,400 sq.
yards = 900
erws or 360
acres or 1,440
'lands'

1 randir of
300 erws, each
of 11,664 sq.
feet or 1,296
square yards of
the foot of
228 mm., or
729 stat. yards
= 120 acres of
54 × 540 of the
foot of ·228 m,
or 480 'lands'

625 of the
squares A placed
together make a
square mile of
Dynval contain-
ing 100,000
'lands,' 62,500
erws or 25,000
acres.
If the square of
3240 × 3240 is
divided into 12
strips, each strip
into 12 quaran-
tenes and each
quarantene into
10 parts, there
will be 1,440
'lands' of 27 ×
270. If the
square is divided
into 9 strips, each
strip into 10 qua-
rantenes and
each quarantene
into 10 erws,
there will be
900 erws of 36
× 324.

An erw of South
Wales, 36 feet
broad, 324 feet
long, of 228 mm.
to the 'foot,'
1,296 yards
or 729 stat.
yards.

Note.—The measurements as made by Dynval's 'foot' of 228 mm. would give 36 to base and 324 to length; 3 'llathen gyvelin,' or rods of 9 stat. feet = 4 rods of 9 'feet' of 228 mm., and the base and length would be in rods of statute feet, 27 and 243 respectively, 3 rods × 27 rods. If the erw had been in the usual proportion of an acre, *i.e.* 1 × 10 instead of 1 × 9, the erw would have been 810 stat. yards, or one-fourth of the Anglesea acre of 3,240 square yards statute; so by adding the fourth randir of pasturage, *i.e.* 100 erws to each of the other 3 randirs, they each become 400 erws, and it will be found that each randir contains 120 Anglesea acres of 12,960 square statute feet or 30 of an Irish acre of 108 × 1080 statute feet, or 90 erws of Dynval of 4,320 statute yards.

304 mm., but really 120 × 1,200 feet of 228 mm., giving 16,000 sq. yards of that foot (10 falls of 9 feet in the one case and 10 falls of a pole of 12 in the other) ; and it was in use

in Cornwall, and was the foundation of the unit of 270 acres mentioned in Carew's 'Cornwall,' p. 110, where thirty acres made a farthing land, and nine farthings the above-named unit, and four of such units a Knight's fee. The above acre of 9,000 yards would appear to be deduced from a square of 12,000 × 12,000 of ·228 m. to the foot=9,000 × 9,000 of ·3048 m. to the foot. Such a square, divided into 10 strips, and each strip into 10 quarantenes, and each quarantene into 10 acres, would give the acre.

CORNWALL.

Stat. feet, 304 mm.   Dynval's 'feet,' 228 mm.

A rectangle of a league (7,920 feet) in length & 9 quarantenes (5,940 feet) in breadth, would give the area of the knight's fee of 1,080 statute acres.

A   1,980   2,640   A

30 acres   40 acres

10 acres   10 acres

5,940 feet
A to B   90 acres
(statute)   160 acres   7,920 feet
A to B

Total : 270 statute acres   Total : 480 acres of the foot of 228 mm.

B

Now 30 is not the fourth part of 90, but 40 is the fourth part of 160, and perhaps the name of a farthing land still remained after the 12-foot rod of 228 mm. was called the rod of 9 statute feet. This gad of 9 stat. feet (12 of ·228 m.) is the foundation also of a Cornish acre of 5,760 stat. yards, $8 \times 9 = 72$ of 304 mm. $= 8 \times 12$ (i.e. 6×16) $= 96$ of 228 mm.

NORTH WALES.

Venedotian Code, Book II. chap. xvii. s. 6: 'And then they made the measure of the legal erw by the barleycorn: three lengths of a barleycorn in an inch; three inches in the palm-breadth; three palm-breadths in the foot; four feet in the short yoke, and eight in the field yoke, and twelve in the lateral yoke, and sixteen in the long yoke; and a rod equal in length to that long yoke in the hand of the driver, with the middle spike of that long yoke in the other hand of the driver, and as far as he can reach with that long rod stretching out his arm are the two skirts of the erw, that is to say, the breadth of a legal erw; and thirty of that is the length of the erw.'

(*Note.*—The breadth of the 4 oxen would be another rod of 16 'feet' of 228 mm. $= 12$ stat. feet; so the base of the erw would be 3×16, and the length $30 \times 16 = 48 \times 480$ of a 'foot' of 228 mm.)

S. 7. '*Four such erws are to be in every tydden.*'

S. 8. '*Four tyddens in every randir.*'

S. 9. '*Four randirs in every gavael.*'

S. 10. '*Four gavaels in every trev.*'

S. 11. '*Four trevs in every mænol.*'

S. 12. '*And twelve mænols and two*' (supernumerary) '*trevs in every cymwd. And as much as we have said above is to be in the other cymwd—that is in number, five score trevs; and that is the cantrev rightly: ten times ten is to be in every hundred; and numeration goes no further than " ten."*'

S. 13. '*This is the number of erws in the cantrev : four legal erws of tillage in every tydden, sixteen in every randir; sixty-four in every gavael; two hundred and fifty-six in the trev ; one thousand and twenty-four in every mænol; twelve thousand two hundred and eighty-eight in the twelve mænols. In the two trevs which pertain to the Court there are to be five hundred and twelve erws :* the whole of *that, when summed up, is twelve thousand and eight hundred erws in the cymwd ; and the same number in the other cymwd—that is, the number of of erws in the cantrev is twenty-five thousand and six hundred —neither more nor less.*'

S. 14. '*Of the twelve mænols, which are to be in the cymwd, four are assigned to aillts to support dogs and horses, and for progress and dooraeth ; and one for canghellorship ; and one other for maership ; and the rest for free uchelwrs.*'

S. 15. '*And from those eight the King is to have a gwesta every year ; that is a pound yearly from each of them.*'

32 trevs or 8 mænols (pound paying units) = 8,192 erws of Dynval's measure.

12,288 'feet' of 228 mm. from A to B.

A to G
3,840.

A 1536

Side,
15,360
'feet' of
228 mm.

1
trev

1
mænol

C

D

E

F

B

C D E F (2½ mænols) being a square with sides 7,680 (half of 15,360) feet of ·228m. to foot containing 10 trevs. Ten of these squares make the 100 trevs which would contain 6,400 Cornish, South Wales, or Lancashire acres, and are the cantrev of 25,600 erws as described. The square of 10 trevs if divided into 8 strips, and the strip into 10 quarantenes, and the quarantene into 8 parts, would give the tydden or Cornish acre of 96 × 960 of the 'foot' of ·228 m., *i.e.* 72 × 720 of the stat. foot of ·3048 m.

Total, 2,048 'tyddens,' or Welsh, Cornish, and Lancashire acres, each of 92,160 square feet of 228 mm., or 51,840 square statute feet of 3,048 mm., in each of the 8 mænols 256 'tyddens,' &c.

A tydden of 4 erws, each 48 'feet' of
228 mm. into 480, founded on a rod
of 16 'feet,' 3 × 30 falls.

A tydden equals one of the
Cornish, S. Wales, West
Devon, and Lancashire
acres, i.e. 72 × 720 stat.
feet.

The 4 'erws' also are each
36 × 360 feet of statute
feet of 304 mm., 3 × 30
duodecimal rods.

A Trev.

A   1,536 feet of 228 mm.   B

3,840
feet of
228 mm.
A to C

4
tyddens
1
randir

A

1
gavael

1
erw

1 trev = 4 gavaels
  ,,   = 16 randirs
  ,,   = 64 tyddens
  ,,   = 64 Cornish acres
  ,,   = 256 erws

The trev is divided into
4 strips, and each strip
into 4 quarters, the 4th
part of which is the acre
of 4 erws.

C

Before leaving this part of the subject I should refer to a
MS. (written in the year 1585—that is, many centuries after
the times that I have been speaking of) in Lambeth Palace
Library, forming part of the Carew MSS.   I am indebted to
Mr. Seebohm for a knowledge of the existence of these
volumes.   This MS. (vol. 607, p. 125) after recording not

only the presence of the 'Irish' and 'Cheshire' acres in Ireland, but also two other acres, the one founded on a pole of 27 statute feet, and the other on a pole of 29 statute feet, states (on an interpolated page, and in a different hand) under the heading, 'Irish Measure' that a 'quarter' or ploughland was measured by the cord or line of 29 feet, '*which in some part of the countrye is accompted 18 cubits and 18 inches, and in some other countrye 18 cubits and 18 hands (every hand to contain 4 inches), every pearche containing 21 foot to the pearche.*' As to the cord containing 18 of 1 cubit + 1 inch, it will be found that the statute cubit + the statute inch, *i.e.* ·456 m. + ·025 m. = ·481 m., which is the Olympian *sesquipedalis* cubit, giving, therefore, exactly the Olympian foot of ·320 m. Eighteen of these cubits (or 27 of these feet) amount to the length of a cord of 28½–29 feet statute of ·304 m.

As to the perch of 21 feet statute and the cubit (of 7 hands, by a Stat. of Henry VIII. each of 4 inches) of 28 inches, a cord of 42 statute feet (= 2 perches of 21) gives 18 of such cubits : 28 × ·0254 m. = ·711 m.; the cubit, therefore, was *bipedalis*, and was 2 Royal feet of ·355 m., and 2 cords each of 18 of such cubits = 2 cords of 42 statute feet, or 4 perches of 21, which exactly make the base of the common Irish acre of 84 statute feet, or 72 Royal feet. All this I have already shown in the. remarks and diagrams *ante*, as to the Irish acre (see as to the Royal cubit of 7 palms, not hands, Hultsch's 'Metrologie'). The MS. goes on to speak of the different 'countries' in Ireland and the 'cassells of land' therein, and states that land measure was by the ploughland (note! not by the acre which is derived from it), and that—

A cassell of land doth conteine generally in all countryes alike .   4 plow lande
A plow land or quarter in some parts of the country doth conteine   60 acres
A plow land or quarter in some parts of the country doth conteine   80 acres
A plow land or quarter in some parts of the country doth conteine   120 acres
A plow land or quarter in some parts of the country doth conteine   140 acres
A plow land or quarter in some parts of the country doth conteine   20 greate acres

I have already shown how the plow land of 140 acres arose (at Weston, Hunts), *ante*, in the remarks on the Irish acre, and I now show in the three following diagrams the other plow lands, merely remarking that during the lapse of centuries fresh divisions of the larger units may possibly have been made.

In an inquisition ('Inquisitiones Cancellariæ Hiberniæ,' ii. xxx. iii.) in regard to Fermanagh (anno 1603), the temporal land of a barony is described as being divided into ballybetaghs or food-paying units 'each containing 4 quarters,' each of those containing 4 'tathes,' and each of the tathes containing 30 acres of 'country' measure.

A Baille (?) (of 3 Ballybetaghs) consisting of 12 plough lands seisrichs or quarters. 10,080 statute feet of ·3048 m., or 8,640 royal feet of ·355 m.

30 acres 1 tate

1 plow land or seisrich

B
1 quarter of 240 acres
4 × 60
(double quarters)
like 'Wara'
Monahan

1 Ballybetagh

Do.

20 cords of 18 cubits of 2 royal feet of ·355 m. = 720

720

20 cords of 42 statute feet of ·03048 m. = 840

10 acres

840

In a supposed ancient poem referred to in Dr. Sullivan's introduction to O'Curry's 'Manners and Customs of the Ancient Irish,' p. xcvi, a baille or town land is said to consist of 12 ploughlands or seisrichs, so it would thus consist of 3 ballybetaghs.

This is just the same area (*ante*) as the diagram relating to the tircumhail, so a 'tate' would seem to be 3 quarantenes or 1½ tircumhail.

The baille (?) is divided into 12 strips, ploughlands, seisrichs, or quarters, and each strip into 12 quarantenes of 720 into 720 feet of the Royal foot of ·355 m. = 840 × 840 of the statute foot of ·3048 m. The measuring in ancient time was most probably by six falls of a 12-foot rod of ·355 m. to the foot, or by 4 falls of a rod of 12 cubits of ·532 m. to the cubit. B would be a double quarter, or 4 × 60 acres, like a hide of wara. In Spenser's 'View of the State of Ireland' the plough-

2 'cassells' each of 320 acres (4 × 80), or 640 acres in all.
7,680 feet of ·3048 m. (statute).
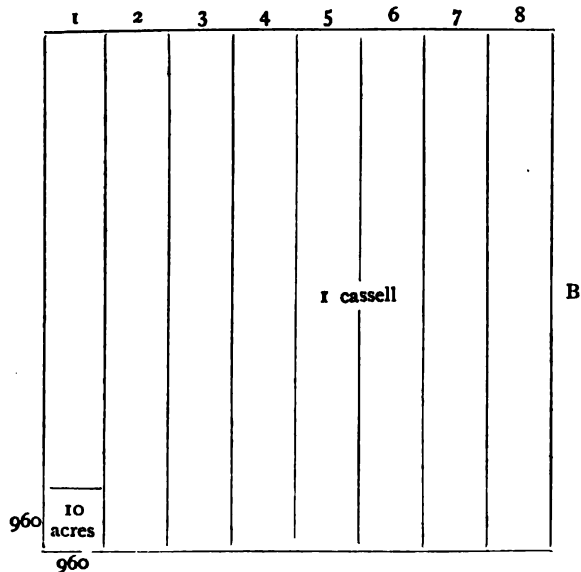
land in Ulster is said to contain 120 acres after the rate of
21 stat. feet to the perch. This measure tallies with the
above, a 12-foot rod of ·355 m. equalling a 14-foot rod of
·3048 m., as explained *ante*.

Another block, B, is divided into 8 strips or ploughlands of
10 quarantenes; the tenth part of one of each is the Cheshire
acre of 96 × 960. There is another acre containing four of
the Anglesey acres (3,240), so it is 12,960 square yards, and
is built up on 6 falls of an 18-foot rod of ·3048 m. to the foot
(or double 'gad') = 4 falls of a rod of 18 cubits of ·456 m. to
the cubit.

These acres of 108 × 1,080 and the Cheshire or Welsh acre
of 10,240 square yards, shown (in the Carew MSS.) also to
exist in Ireland, are the only acres which appear to suggest
that the statute foot of ·3048 m. existed in old times in Ire-
land, the acre of 108 statute feet being exactly 6 × 12 cubits

2 cassells of 80 'greater' acres each.
Total 160 acres.
4,640 statute feet of ·304 m.
    4,000 feet of ·353 m.   } square
    4,800   ,,   ·2942 m.

20 cords of
29 feet of
·3048 m. =
580

1160

20 cords of
25 feet of
·353 m. =
500

½ cassell

C

The foot ·2942 m. is the
step foot of ·353 m.   See
the Appendix.

5ª

1000
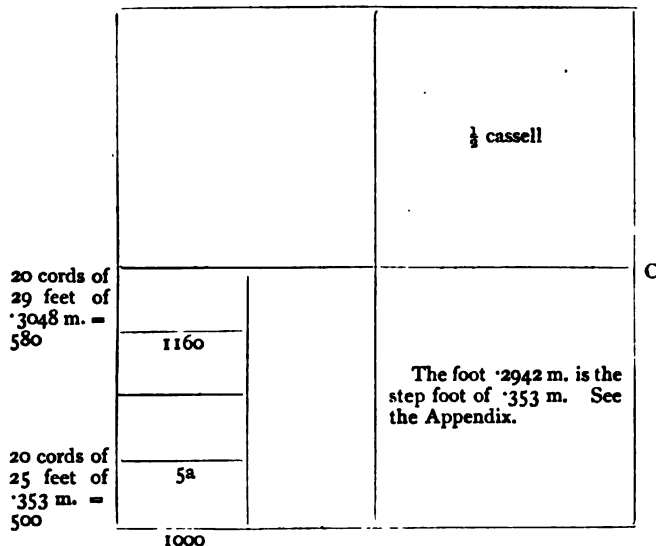
of ·456 (statute cubit), and the 10,240 square yards statute (Cheshire acre) being 4 × 16 statute cubits *or* 128 *of Dynval's Welsh feet of 9 inches.*

The cassells, C, are each divided into 2 strips or ploughlands, and each strip into 4 quarantenes, one-tenth of each quarantene is an acre of 116 × 1,160 statute feet of ·3048 m., or 100 × 1,000 Irish feet of ·353 m., so there would be 20 acres in the strip.

In addition to the above there is the 'Cunningham' acre in Ireland, founded on the foot of ·317 m. (also in Arabia and Japan), being probably the tenth part of a rod of 6 × ·525 m. or 6 Babylonish Egyptian cubits, originally. See Appendix, p. 379 *et seq.*

Whatever the larger unit was in all the preceding diagrams, the acre seems to be derived from the division of it into strips, by 8, 10, or 12, and the size depends, therefore, not only upon the size of the foot, but also upon such subdivisions, showing that the acre is derived from the larger unit and not the larger unit from the acre. Of course it must be understood that as far as regards the ownership of any particular acre or virgate, such ownership was (under the open-field system) scattered about within the bigger unit, and that there might be several ownerships within any one particular quarantene, virgate, or acre. Moreover, I can see in the old Roman centuriation carried out by the Agrimensores in straight lines and rectangular divisions, nothing which would forbid the use of the open-field system within such divisions any more than within the rectangular divisions in Yorkshire recorded in Domesday. Nor is there anything in the writings of Siculus Flaccus, or Hyginus, when rightly understood, which would lead us to think otherwise. The material point was the division of the bigger units by poles into acres. As long as the same pole was used, an acre might be 'dropped down' in any place within the bigger unit without reference

to its actual position or shape; for it would always retain the
same relative proportion to the bigger unit if it conformed to
conditions like those contained in the Ordinance of Measures
(said to be 33 Ed. I. c. 6) in part already set out, *ante*.

Passing on now to the rods or virgæ : these were generally
divided decimally, duodecimally, or sexdecimally, being rods of
ten, twelve, or sixteen feet, or *sesquipedales* cubits, thus corre-
sponding with the three divisions of the libra mentioned before.

Two virgæ might be equal in length, though divided
differently. Just as the modern Leipsic foot is divided into
twelve common inches, and also into ten decimal inches, so
too, in ancient times, a rod of 12 feet of 305 millimètres to
the foot would equal a rod divided into 16 spans or Welsh
' feet ' of 228 millimètres, and a rod of 10 feet of 335 milli-
mètres to the foot equals the statutory rod of eleven feet of
305 millimètres $(6 \times 11 = 4 \times 16\frac{1}{2})$ on which the statutory
acre is based, and this again equals a rod of 12 feet of 279
millimètres; $10 \times 335 = 3\cdot35 = 11 \times 305 = 3\cdot35 = 12 \times 279 =
3\cdot35$; so it must not be assumed that the ancient rod by
which the acre in this country was set out was the statutory
rod of $16\frac{1}{2}$ feet, though the resulting size of the acre would be
the same ; moreover, the calculations of the people using these
rods would be based (not on the extremely unlikely number
of $16\frac{1}{2}$, used evidently for the purposes of equalisation), but
in the one case on the sexdecimal system and in the others
on the decimal or duodecimal system, according as the divi-
sions were made decimally or duodecimally.

From these rods would come also virgæ or poles of $1\frac{1}{2}$,
that is 15, 18, or 24, the same containing decimal, duodeci-
mal, or sexdecimal divisions, representing rods of 10, 12, or
16 *sesquipedales* cubits instead of feet. There was in actual
use, as stated above, for measurements a short time ago in
the Isle of Ely a rod of 9 statute feet (that is, 2·74 mètres
most probably built up of 12 of Dynval's ' feet ' hereinafter

referred to, of 228 millimetres 12 × 228 = 273). This rod of 2·73 mètres is called a 'gád,' which is evidently the same as the Anglo-Saxon gád or goad; it coincides in length with the old ell used in Wales for measuring frieze (see Government Report, 1820, Appendix, p. 22, voce 'Llathen Cyfelin,' and 'Pared '), which was also used for measuring land, moreover the 'goad' was a measure used in England for the measuring of cloth (Kelly's 'Cambist,' vol. ii. 285, and Government Report, Appendix, p. 18), and is referred to in Stat. 28, James I. There would be no difficulty whatever in reserving a render or rent of cloth in unison with the 'gáds' or Llathen Cyvelin that were used in measuring cloth and land. We shall see (*post*) that the North Wales acre of 4,320 statute square yards (i.e. 3 erws side by side; see *post*) is founded on twelve of these 'gáds' or 'Llathen Cyvelin' of 2·73 mètres, and the Cornish acre of 5,760 statute square yards on eight of them (i.e. 4 of the like erws), and I suspect that customary acres in other parts of England are built up on the same 'gád' or llathen. At Irthlingborough, in Northamptonshire (see Britton and Brayley's 'Beauties of England and Wales '), there is a stone cross, the shaft of which was used for adjusting the rods by which the 'doles' in the parish were measured. The length of this shaft is said to be about 13 feet statute. If it was 13½, this would equal 1½ 'gáds'= 18 'feet' of ·2286 m. If the shaft is 13, an acre built upon it would exactly equal the Westmoreland acre. Moreover the English cloth ell of 1·1429 m. is the same as the Genevan ell of the like amount, and is *five* of these Welsh feet of 9 inches; and 60 Genevan feet of ·488 m. = 96 statute feet (Cheshire acre), or 128 Dynval's feet of 9 inches, i.e. 8 rods of 16 of such feet. Six decempedal rods of Geneva therefore = 6 sexdecimal rods of statute feet = 8 sexdecimal rods of Dynval's feet, and *256* cloth ells of 1·1429 m. = the breadth of the Cheshire quarantene of 10 acres = 292·608 mm. = 1,280 Welsh feet of Dynval of 9 stat. inches each.

Spans, Palms, and Feet in millimètres. Taken from Government Returns in Kelly's ' Cambist.'

202	Cagliari	295	Augsburg, Cleves, Olenburg, Strasburg
228	Welsh Dynval's *	296	Sweden, Embden (Roman)
232	Valentia	297	Anspach, Cremona, Rome
242	Sicily	300	Middelburg, Neuchâtel, Zürich, Prague
243	Carrara		
247	Genoa	303	Nuremberg
248	Sardinia	305	England (of 6-palm cubit)
261	Nice	307	Königsberg
263	Naples	309	Berlin
267	Revel	313	Rhine, Leyden
273	Riga	314	(Lindau long foot) Scotch
275	Cologne	316	Vienna
278	Heidelberg	317	Innspruck
279	Osnaburg	323	Turin
280	Maestricht	324	France
282	Erfurt, Spain, Stettin, Leipsic	328	Lisbon
283	Amsterdam, Dresden, Magdeburg	333	China (mathematical foot)
		334	Moscow (Drusian foot)
284	Breslau	340	Verona
285	Antwerp, Brunswick, Haerlem	342	Lyons
286	Hamburg, Wirtemberg, Dantzic, Lorraine, Frankfort	346	Vicenza
		347	Venice
287	Liège, Gotha	349	Russia
288	Lübeck	353	Padua (of 7-palm cubit)
289	Aix, Bremen, Mannheim, Munich, Ratisbon, Rostock, Ulm (Lindau common foot)	356	Bordeaux and Cracow do.
		360	Dordrecht
		377	Sienna
290	Göttingen, Hanover, Lüneburg, Stralsund, Wismar, Zell, Mecklenburg	380	Bologna
		396	Milan
		401	Ferrara
291	Groningen	436	Bergamo
292	Calemberg	464	Pavia
293	Berne	487	Geneva

The statute *inch* is ·0254 m. ; the *palm,* ·0762 m. ; the *hand,* ·1016 m. ; the stat. *foot,* ·3048 m. ; the statute *cubit* of 6 palms, ·456 m. ; the '*Royal*' *foot,* ·355 m., and the *Royal cubit* of 7 palms, ·532 m. ; and the '*bipedalis*' cubit, ·710 m.

I have given above a list of palms, spans, and feet reckoned in millimètres (all taken from the second volume of Kelly's 'Cambist,' at page 244). There is one exception, viz., *Dynval's Welsh ' foot,' already referred to, being really a ' span ' of 228 millimètres. We arrive at a knowledge of the size of this from the fact that it is proved to be ¾ of our foot, i.e. 9 statute

inches, since the Welsh perch is 9 feet square, 160 of which
make a stangell, and 4 stangells the erw or Cornish and
Welsh acre of 5,760 yards (see Appendix to the Government
Report of 1820 on Weights and Measures, pp. 17 and 26)
and also from the fact that three roods measured out (as
described below) with a rod of 16 of these feet or spans
make the common North Wales acre of 4,320 square statute
yards (see Government Report, p. 5); the identification is
therefore complete.   Taking ·3048 m. to be our English foot
(see table *ante*), ¾ of that will be ·228 m.   It is worthy of re-
mark that a rod of 16 ' spans' is of a very ancient date : it is
to be found in No. vi. Tabula Heroniana No. 7, where the rod
or acena is stated to be 16 spithame or spans (see Hultsch's
'Metrologicorum Scriptorum Reliquiæ,' Leipsic, vol. 1, pp. 47
and 193).   This spithame of 3 palms also in ancient times
was called a 'sextans' and 'dodrans' (see pp. 13 and 88).   Of
course this 'foot' of 228 mm. is not a natural foot; it was,
in fact, a paper 'foot' of Dynval, who is called the 'best
measurer' (see 'Venedotian Code,' Book II. chap. xvii. s. 2,
quoted *ante*), and all the measures founded on it are stated
in the Appendix to the Government Report of 1820, *vocibus*
' leap,' p. 21, 'pace,' p. 25, 'ridge,' p. 30, ' mile,' p. 24, ' Pared,'
p. 25, ' Llathen Gyfelin,' p. 22, the two latter being each of
12 of such feet = 9 statute feet, and the ' Paladr' (p. 25), being
18 of such feet = 13½ statute feet.

I am much indebted to Mr. Seebohm, the author of ' The
English Village Community,' not only for the great interest
he has shown and for help given, but for special information
in regard to the history, not only of the Drusian foot of 18
digits (instead of the 16 of the Roman foot of ·296 m.), but also
of the ' Royal' foot of 355 mm., i.e. the *foot* of the *seven*-palm
cubit of ·532 m., the statute *foot* being of the 6 palm *cubit* of
·456 m., each cubit being *sesquipedalis*.   It will be seen from
the list taken from Kelly's ' Cambist' that the Drusian foot

is the 'mathematical' foot of China, and is in use at Moscow, and that the Royal foot is in use at Padua, Bordeaux, and Cracow, as it still is in England, and Ireland, and Wales. wherever the acre of 7840 is measured, a twelve-foot rod of 355 mm. equalling a 14-foot rod of ·3048 m., *twelve* of the *seven*-palm cubits equalling, of course, *fourteen* of the *six*-palm cubits.

The size of all these feet, some sixty in number (though most interesting from an historical point of view), is only material so far as it may enable us to say what kind of rod might have been used in any one particular case : for instance, the use of one of these feet might give a rod of 10 feet, while the use of another might give a rod of 12 feet, the two rods being exactly alike in actual length, but the real fact being that in the one case a decimal rod was used, and in the other a duodecimal. So, too, as mentioned above, a rod of 16 spithame, spans, or 'feet' of 228 millimètres equals a rod of 12 statute feet of 304 ; but the actual rod used, as we shall see, was one of 16 and not 12. I give now a table showing the application of these principles to our statute acre and other acres to be found in these isles, merely remarking that the rod of 16½ of our statute acre is a statutory rod adopted perhaps to fit into the various forms of the same acre, as I have found cases in which this statutory rod is incorrectly stated : for instance, the virgates of the seven manors surveyed in the MS. E. M. are all said therein to be measured by the rod of 16 feet, and in one of them (i.e. in the survey of West Wratting), the virgate is said to be measured '*per perticam ut statuitur xvi pedum.*' It must be remembered, however (from the foregoing explanation as to Weston in Huntingdonshire and the Lothian and Westmoreland acres), that the change from one foot to another might be made not only by increasing the number of feet in the *same* rod (thus keeping the acre of the same size) but (as in the instances above and some of those in the Appendix) by dividing the *quarantene.* Thus

In this Table I call square ells and yards 9 square

Name of acre	A stat. foot metre	B another foot	Square ells or yards of feet A	Do. of B feet	No. of roods in acre	Poles in base of rood
Statute . . .	·3048	—	4,840	—	4	2
				or	4	3
Idem . . .	—	·2792	4,840	5,760	4	2
				or	4	3
Idem . . .	—	·335	4,840	4,000	4	2
				or	4	3
Idem . . .	—	·3138	4,840	4,551	4	2
Westmoreland . .	·3048	—	6,760	—	4	3
Cheshire . . .	·3048	—	10,240	—	4	3
Welsh Dynval . .	—	·228	4,320	7,680	3	3
Welsh . . .	—	·228	5,760	10,240	4	3
Anglesey . . .	·3048 or •	—	3,240	—	3	3
		·228	3,240	5,760	3	3
Irish	·3048	—	12,960	—	4	3
Irish	·3048 or	—	7,840	—	4	3
		·355	—	5,760	4	3
Scotch . . .	—	·3148	6,150	5,760	4	2
Lothian . . .	—	·290	6,150	6,760	4	3
Merionethshire . .	·3048	—	2,430	—	3	3

the Westmoreland foot is to the statute foot as 12 to 13 ; by dividing the quarantene by 13 you get an acre of 72 × 768, and thirteen of them consisting of 6 × 64 *twelve-feet rods of ·3048 to the foot* instead of 12 acres of 6 × 60 *twelve-feet rods of ·330* to the foot, the *quarantene* is the same, the acre different.

While we carefully remember the three divisions of the libra, described in the former part of this paper, and also the rods or virgæ divided into divisions of feet corresponding with the decimal, duodecimal, and sexdecimal divisions of the libra, let us, in order fully to understand the spirit of the Domesday Survey and the principle on which it was based, carry our minds to a time some centuries before the date of it,

feet, whatever that foot may be, statute or otherwise.

Length of base of acre mètres	Do. in feet A or B	No. of poles in base	No. of feet in pole	Name of foot	—
20·11	66 or	4 6	16½ 11	Statute A	—
20·10	72 or	4 6	18 12	B	Osnaburg foot
20·10	60 or	4 6	15 10	Drusian B	Decimal
20·12	64	4	16	Rhineland B	Long foot
23·77	78	6	13	Statute A	Or built upon rod of 12 feet of 330 mm. 6 × 12
29·26	96	6	16	Statute A	Also Irish, Welsh, Westmoreland, Lancashire, Yorkshire, Derbyshire, &c.
32·832	144	9	16	Welsh B	3 roods side by side
21·88	96	6	16	Welsh B	Also Cornish, &c.
16·45	54	6	9*	Statute A	* Most probably a duodecimal rod—*i.e.* 12 of Dynval's feet of 228 mm., the 'Llathen Cyvelin' or 'Gád'
16·45	72	6	12	Dynval B	
32·87	108	6	18	Statute A	4 of Anglesey acres
25·62	84	6	14	Statute A	Also Welsh and many parts of North of England
25.62	72	6	12		
22·66	72 or	4 6	18 ·12	Lindau B	Long foot of Lindau
22·62	78	6	13	Lindau B	Common foot of Lindau, or built upon a 12-foot rod of 314 mm.
24·7	81	9	9	Statute	3 roods side by side

and call back from the past as witnesses all things that can help us to understand the model or remodel on which the land was set out by those who had the power over it. That time was one when the open-field system was in full force, and when the land was distributed in plots of acres varying in area under the circumstances detailed below, but nevertheless called and passing as acres, and lying within some larger unit (such as a 'leuga'), as before stated. The ownership of the acres did not lie together, but was broken up into strips, which were distributed either in two fields—indicating a two-course shift—or

* The Anglesea acre founded on the gad of 9 statute feet or 12 feet of 228 mm. is also to be found in Somersetshire (2 Hone, 917), also in Hampshire Charity Report, also in Report to Board of Agriculture in Oxfordshire, p. 152, and in Herefordshire, p. 159.

(as in after times) in three fields, indicating a three-course shift; the strips, moreover, comprising them were not (as to owner-ship) necessarily 'cheek by jowl' with each other, neither were they necessarily distinguished by any balk or boundary mark between the strips belonging to different owners. These strips were not, as a rule, straight or at right angles to the com-mon base from which they sprang, nor was such base straight; on the contrary, they were generally 'wavy' in character, and of the shape shown by an inverted letter S, thus 〈, as anyone who uses his eyes in passing through the grass country of the Midland Counties can very well see. The base line of these strips was also irregular, though continuous; but for the sake of convenience of explanation I assume the form of the acre both as to base and side to be rectangular, and I show here (though of course not in the proper proportion, on account of want of space) a British 'Erw' and a common acre.

Welsh Erw or unit.
32·940 mètres.

Statute Acre.
20·130 mètres.

10·9 mètres.

201·30 mètres.
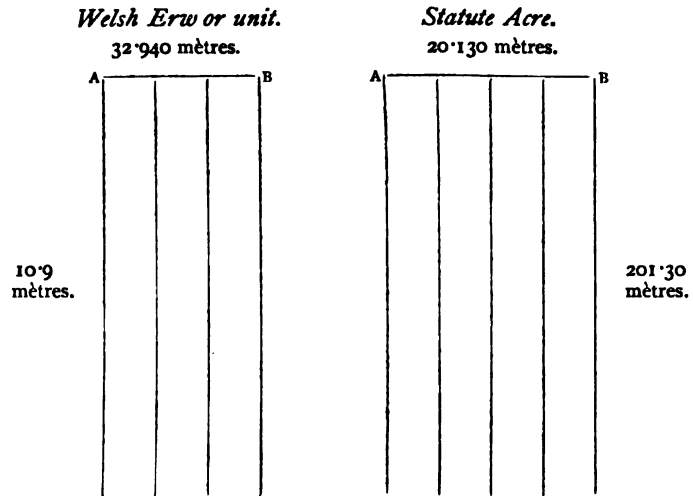
A B represent the base line on which the measuring *rod* or *pole* fell, and from which the strips sprang. The length of this rod varied, the variation corresponding in most

cases with one of the three divisions of the libra or pound, or the weights and measures for measuring grain, cloth, &c., used by the nation or people measuring, and corresponding with the rods and chains with which the larger unit of which the acre formed a part was measured ; but the subdivisions of the land when once thus measured out into acres, were perhaps subdivided into smaller pieces controlled, perhaps, by the different character of the ground as to stiffness of soil, &c. The variation in the size of acre itself, such as the statute, the Scotch, Irish, Cheshire, &c., is not to be accounted for, as Isidore seems to suppose, by the peculiarity of soil : the above acres are too widely spread to be accounted for in such a way. If reference is made to the list of virgates, given below, from every part of England, and which contains every *original* virgate that I can find, it is evident that the *number* of acres in each could not have been, any more than the acre itself, controlled by any peculiarity of soil, being, as they all are, in the decimal, duodecimal, or sexdecimal systems. Moreover, in later times, though a virgate might be added to, the total acreage must not be taken as the original virgate ; thus MS. E. L. states the custumarii at Belesham to hold one virgate of 20 acres *plus* 1 or 2 acres of ' debile dominium,' but the original virgate of 20 acres was not changed thereby from 20 to 21 or 22, but remained and is recorded as the same. So, too, in MS. P. W. page 60A, the virgate at Herfertun is stated to be ' in quolibet campo decem acræ excepta tertia portione terræ quondam Thomæ Ruppe cum pertinentiis et portione quondam pasturæ redactæ in culturam.' There are one or two cases in Hunt's H. R. of the like kind, which I have noticed in Table 1 to my Cambridge paper. The proportion of the base line of any one particular acre to the side of it was generally theoretically 1 to 10 or 1 to 12, according to the system adopted, as described *ante.* The length of the side was, however, subject

to departure from this fixity of proportion, and the reason
and extent of variation is best told in the language of a
witness contained in the answer of William Carsley of Stret-
ham, in Cambridgeshire, to an interrogatory put to him in
the suit in the Exchequer in James I.'s reign, filed by Sir
Miles Sandys, Lord of the Manor of Stretham, against
Thornton Pauncefoot and other tenants of the said manor.
' To the ninth interrogatory he, this deponent, saith that it
is the use and custom within the said manor of Stretham,
and other manors near adjoining, to measure the fen grounds
by four pole in breadth for an acre by a pole of 18 feet long
[i.e. a double gad], which is the usual pole to measure fen
grounds by, and in length for an acre of the said grounds
as it happeneth, according to the length of the furlong of the
same fens, which is sometimes shorter and sometimes longer.'

I may mention here, in passing, that the fact that there
were two ways of dealing with the surplusage caused by the
' Anglicus numerus ' (see *post*) effectually destroys the force of
all the arguments for uncertainty in the size of the Domesday
geldable virgate, founded on passages like the following :
' Dicunt quod nesciunt quot acræ faciunt virgatam quia
aliquando quadraginta octo acræ faciunt virgatam et aliquando
pauciores' (' Ramsey Chartulary,' vol. i. p. 438). This lia-
bility to variation in length of the sides of acres is probably
alluded to in an entry in Domesday, otherwise as yet unex-
plained. (See Domesday, tom. 1, fol. 145, ' Tenet Episcopus
Lisiacensis de Episcopo Baiocensi 1 hidam V pedes minus,'
meaning perhaps that the furrows were 5 feet shorter than
usual.) A variation also might arise from the *original* virgate
being *added* to, as at Belesham and at Herfertun. It is
necessary also to say that the Stretham quotation above
alluded to only applies to the marsh and fen grounds, then
recently drained and allotted out.

It seems by the ' Ordinance of Measures,' 31 Ed. I. (stated

ante), that the acre need not have been of the ordinary proportion as to base and length, of 4 × 40, and if that is so it is an additional argument against the base of the acre being used as a measure of length originally.

It is to be noted, too, that generally—though the proportion of 1 to 10 or 12, as the case might be, was maintained—the base line might be subdivided into more than four, or even six, poles by poles of a shorter length, as the following quotation from Kennett's ' Parochial Antiquities,' p. 534, will show : ' Quælibet acra continet duo Seliones cum omnibus furlongiis, exceptis virgis et buttis quarum quatuor virgæ faciunt unam acram et aliquando plures. Similiter aliquando quatuor buttes aliquando quinque aliquando sex aliquando septem aliquando octo faciunt unam acram,' meaning, not the original poles, but shorter poles, marking out (within the line first measured off by the four long poles) the land into bovates, probably according to the stiffness of soil or to suit the convenience of those owning one ox ; for instance, a base line of 72 might be subdivided into six bovates of 12, or 8 of 9, the base line of 60 into 8 of 7½, or 6 of 10, the base line of 64 into 8 of 8. The subdivisions were often called virgates, while the larger divisions into four were called ' plenæ virgatæ.' The land in the Manor of Chatteris, in the Isle of Ely, was, as appears on reference to the Cottonian MS. Vespasian E. 2, p. 79, all held in the subdivisions of 8 acres.

Suppose now some centuries before Domesday a British tribe or people dividing their land allotted to them out of the larger unit. They hold in their hands their virgæ or rods of a length in some cases corresponding to, or proportioned to, the amount of the render of food, cloth, &c., or to its equivalent in money, thus fitting in with the divisions of their pound. ' Quantum enim hereditatis unusquisque possidet tantum dat et census : et quantum census

dat, et arat, et secat fœnum, et metit seritque ; et pullos dat, et lini resticulas.   Cum autem debent arare cum virga metitur, qua et mansi solent metiri.   Et ipsa virga signata est secundum uniuscujusque rationem et ubicunque signum occurrerit, ibi parvum lignum figitur in terra, et ipsi tamen in prima scissura et seminatione arant :' quoted in Ducange, *voce* 'Virga terræ.'   The rod-holders measure out a rood of 2,560 square yards by three falls of a pole of 16 British 'feet' of 9 inches on the base line, the rood being thus 3 poles wide by 30 poles long.   The three British 16-'foot' poles equalling three poles, each in length 12 of our statute feet, the 2,560 square yards thus equal 1,440 square statute yards.   From each pole of 16 feet there would hang as it were a strip of 853⅓ square yards, or 480 if stated in the present statutory measure, but 10,240 square British yards make one of the Welsh acres, and 2,560 square British yards make an 'erw,' and three instead of four of these small erws make another Welsh acre, viz. that of North Wales of 4,320 statute yards.

Now it would be fairly asked, What proof have you of the foregoing statements ?

The proofs are not wanting.   If we take the ancient laws of Wales (Record Commission 1841, p. 90) and turn to the Venedotian Code, Book II. c. xvii., being a manuscript written after the year 1080, but containing the ancient laws of Wales, said to have been collected and compiled by Howel-dda in or about the year 743, we find it recorded that Dyvnmal son of Clydno measured the whole of Great Britain '*before the Crown of London and supremacy of this island was seized by the Saxons,*' and that he made the measure of the legal ' erw ' or British unit thus : 'three lengths of a barleycorn in an inch ; three inches in the palm ; three palm-breadths in the foot ; four feet in the short yoke, and eight in the field yoke, and twelve in the lateral yoke, and sixteen in the long yoke, and a rod equal in length to that

long yoke in the hand of the driver, with the middle spike of
that long yoke in the other hand of the driver, and as far as he
can reach with that rod stretching out his arm are the two skirts
of the erw, that is to say, the breadth of a legal erw ; and thirty
of that is the length of the erw.' Three palms made one
spithame or span in Heron's table, referred to above ; so this
rod was really 12 feet of 305 millimètres divided sexdeci-
mally into 16 British 'feet' or spans of 228 mm. The
breadth of the erw, was therefore (taking the stretching out of
the arms and body of the ploughman on *each* side of the
centre of the furrow as 1 rod—i.e. the breadth, in fact, of 4
oxen [12 *statute* feet]) 3 rods of 16 'feet' or spithame of 9
inches to the foot (so called, but really 3 palms of 3 inches
each), and 30 times a rod was its length. I have shown
the shape of it *ante* under the term 'the Welsh erw,' and
the size was 48 × 480 (30 × 16) = 2,560 British square
yards. It will be observed that, whatever the foot was, there
were sixteen of it in the rod (i.e. the rod was sexdecimal),
and that 256 is the precise number of pence in the pound
of 16 ounces named in Ina's 'ransom,' *ante*; there would
therefore be (each erw representing a farthing) one farthing
or 1024th part of the pound to the base line, one farthing
to the 'erw,' and 256 farthings to the 'trev,' and 256 pence
to the 'mænol,' i.e. the pound-paying unit. I have, of
course, no evidence to show that there were actual British
coins of these amounts, but the pound or 'weight' 'in
account' was thus divided ; it coincides as we see with the
division of the acre and the pound-paying unit, viz. the
'mænol,' and the former having been stated by Howel-dda
as pre-Saxon, I conclude the division of the 'weight' was used
by the British as the erw certainly was. It possibly might
be Scandinavian, but pre-Saxon. If we group four of these
'erws' together for the purpose of forming an acre, the
following diagram represents the whole acre.

21·960 mètres,
72 Stat. feet.

A————————B

Breadth, 288 palms, or 72 Statute
feet ; length, 2,880 palms, or 720
Statute feet : breadth, 6 rods of
48 palms, or 4 of 18 Statute feet ;
length, 60 rods of 48 palms, or
40 rods of 18 feet. Total—10,240
square yards, or 5,760 Statute
yards. The 'foot' or span = 228
mm., being ¾ of 304 mm. or Sta-
tute foot. Welsh, Cornish, and
Lancashire Acre.

219·60
mètres,
720 Stat.
feet.
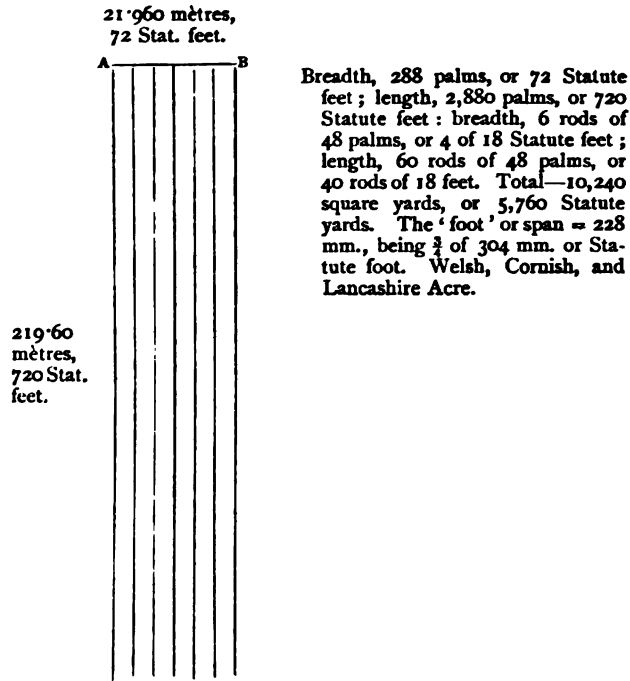
Such was one of the British acres and pounds in Great Britain before 'the Crown of London and the supremacy of this island was seized by the Saxons.' The British acre thus constituted represents 10,240 yards, and is the Cornish acre and erw of South Wales, which are 5,760 square statute yards; thus 2,880 × 288 palms of three inches = 720 × 72 statute feet = 5,760 statute yards. If three of these Celtic 'erws' are taken they make up 4,320 square statute yards, which is one of the 'erws' of North Wales. So, too, in Wiltshire, 3 roods, and not 4, make an acre. In the same way the Cheshire and Staffordshire acres are built up of poles of 16 stat. feet to the pole, and give 10,240 yards to the acre, and are the acres of the Manors 'inter Ripam' contained in the table, *ante*.

The Anglo-Saxon 'hida' or 'carucate,' the Welsh

'mænol,' and the Irish 'baillebiatagh,' were the units into which the land was grouped for the purpose of paying one pound's worth, be it of silver or food. The English pound-paying 'hide' was originally subdivided into four 'terræ,' and each terra into two virgates, or perhaps four, when the land was 'wara,' and therefore double in amount, the Welsh mænol into four 'trevs' and each trev into four tyddens, with a 'gavael' of 16 acres or 64 'erws,' the Irish 'ballibiatagh' into four 'quarters,' and each quarter into four 'balliboes,' in some places called 'tates.' The hide was sometimes called by a name that indicated some common interest or bond between the persons holding it; thus, at Hatfield, in Hertfordshire, there was the Dogen hida, the Lufan hida, and the Danes hida. (See MS. L.E.)

Taking the pound-paying Welsh unit called the mænol and turning to the 'Ancient Laws and Institutes of Wales,' Record Commission, 1841, page 90–1, we find that each 'mænol' contained 1,024 'erws.' As the 'mænol' was the pound-paying unit, each 'erw' would pay one farthing if the pound consisted of 256 pence, the very number we found the Mercian pound of account to contain, the four 'trevs' of the 'mænol' would each consist of 256 erws, and each pay 256 farthings, i.e. 64 Mercian pence of account, of 30 wheat grains to the penny, i.e. 60 (three score) Frank or Norman pence; each 'gavael' would consist of 64 'erws,' and would pay one solidus or ounce of 16 Mercian pence, or of 15 Frank and Norman pence, each 'randir' would consist of four tyddens of 16 'erws,' each of which would pay one Mercian penny of 30 grains, and each 'erw' of the four which com-posed the 'tydden' would pay one farthing. The composition of the mænol is shown thus :—

1 erw =   ½d.
4 erw = 1 tydden =   1d. = 1 Cornish and Welsh acre.
16 erw = 1 rhandir =   4d.
64 erw = 1 gavail =   16d.
                    ⌠Three score Norman pence of
256 erw = 1 trev   = 64d. =⌡   32 wheat grains or 24 Troy
                    | grains.
1,024 erw = 1 maenol = 256d. = 1 pound of silver, of 16 'ore denariorum.'

At page 91 'Ancient Laws, &c.' S. 15, written in the 13th
century, long after ' the Crown of London and the supremacy
of this island was seized by the Saxons,' and the pound of 256
pence had ceased to be, we read (in language suited to the
money of that day) 'three score pence is charged on each
" trev " of the four that are in a mænol, and so subdivided
into quarters in succession until each " erw " of the tydden be
assessed ;' therefore there is no erw in the tydden free from
taxation.

Referring back to the composition of the Mercian pound,
we find that 256 pence of 30 wheat grains equal 240 Norman
or Frank pence, each of 24 Troy grains, or 32 wheat grains ;
so the 64 pence are rightly called three score pence of the
Frank pound of 240. We have, and I have fully set out
ante (in a table in a former part of this paper), the for-
tunately preserved account of precisely the same arrange-
ment of acres and pence in D. Bk. itself contained in a recital
(referring to the time of Edward the Confessor) relating to
the land 'inter Ripam,' where the acre itself was 10,240 stat.
yards founded on 6 poles of 16 stat. feet, the hide or pound-
paying unit 256 acres, and the 'valet' in some manors stated
in Norman money, and in others in the old Mercian money ;
showing how the 60 pence or three score in some manors
would in others appear as 64—in other words, the money of
the day in the money which was fast dying out.

But the most interesting fact remains that in many places
in England we find, in old manuscripts, hides that consist of
128 or 256 acres, and a virgate of land stated to be 16 or

32 acres; and when so, and if I am right in the supposition that the Welsh MS. speaks the truth in asserting that this sexdecimal system was in force 'before the Crown of London and the supremacy of this island was seized by the Saxons,' there is the greatest probability that the population was not disturbed by the Anglo-Saxons, and that the old grouping into the pound-paying unit of 256 acres was not varied even after the division of the pound into 256 pence had ceased. If it could be ascertained, therefore, from old manuscripts what places had a virgate of 32 or 16, or bovates of 8, and a map made showing such places, it would, I am sure (always assuming the truth of the MS.), give us a pretty accurate estimate of how far the old population was displaced, whoever they were.

The Romans certainly did nothing much in that direction, as the British 'foot' of 9 statute inches is not the Roman foot of 296 mm.   On the contrary, as that foot of ·296 m. would make a *duodecimal* rod of 3·55 m., which is the *decimal* rod of the Royal foot of ·355 m., on which the widely prevailing *Irish* acre of 7,840 yards is founded, it seems to show also that the people, whoever they were, who used *this* foot, also were not disturbed either by the Romans or by the Anglo-Saxons in those places where it appears in England.   There is a virgate of 48 very prevalent in Gloucestershire; this may be a grouping by the Anglo-Saxons of acres into 24 in each of the two fields, but it is equally likely to be a grouping of 3 virgates of 16; in that event the population could not have been much disturbed there.   Again, at Aylington or Adelintune in Huntingdonshire (H. R. 656), there is in the land of the 'libere tenentes' a grouping of three plots of 16 acres each together, making 48 in all, though the virgate is stated to be 24.   But, however this may be, there can be no mistake about a virgate of 16 acres that is one standing out *per se*, and must represent the original 'gavael'

or virgate of the old units of 256 and 128 acres. Such was
the virgate at Chatteris in the Isle of Ely, Cottonian MSS.
Vespasian E. 11 fol. 660; at Broctune in Huntingdonshire,
H. R. 600, and R. C. 335; Barrington, Cambs., 2 H. R. 560;
Long Stanton, 2 H. R. 468; St. Ives, Hunts., R. C., vol. 1.
p. 282; Colne, 2 H. R. 605; Thorpe, in Norfolk, L. E., and
so on, and in the other places mentioned in my list of vir-
gates, *post*.   Moreover, at Chatteris ('Ramsey Chartulary,'
p. 431) the tenants (line 12) are said, 'reddere ad *marcam
quatuor denarios*' (not, as in other manors, 'dant hydagium ')
and the mark of gold or Mercian mark was, as we have seen,
divided into sexdecimal divisions.

 We have taken as an illustration the proceedings of a British
tribe. The same principles guided the practice of all the
other peoples in these islands, and probably they are of a
very remote origin. Any question as to the foot and the
actual size of the acre in comparison with our standard
measures is immaterial in this discussion (though the statute
acre and the statute foot enable us to gauge the size of any
particular acre or rod) ; it is the *number* of the poles on the
base line that built up the acre, the *number* of feet that formed
the rod, the *number* of pennies that formed the pound, and the
number of acres that formed the pound-paying unit of assess-
ment, that are absolutely essential to the true understanding
of Domesday. Taking an acre of the ordinary proportions,
i.e. 4 × 40 poles, the fall four times on the base line of a pole
of 18 feet of 279 mm., would give an acre of 4,840 stat. square
yards, and a penny of 288 to the pound, and represents the
Anglo-Saxon acre of 5,760 yards, and pound of 288 pence.
The fall of four times of a pole of 15 feet of 335 mm. also
gives the stat. acre of 4,840 yards, and a penny of 240 to the
pound, of 24 grains to the penny, like the Norman and
Frank pound and acre, with the penny in duodecimals (instead
of decimals) like the Anglo-Saxon. A fall of six times of a

pole of 16 'feet' or spans of 228 mm. gives the Cornish acre
and an 'erw' of South Wales, with 256 pence to the pound
with 30 wheat grains to the penny, and 10,240 square British
yards and 5,760 square statute yards to the acre. A fall of six
times of a pole of 16 feet gives the Cheshire and Stafford-
shire acre, with 10,240 statute yards to the acre. It is to be
noticed that in the Cheshire acre the base is 96 feet, i.e. six
times the length of the rod of 16 statute feet of 305 mm. It
is thus perfectly immaterial as to the size of the feet so long
as we know the number of feet, whatever they were, that went
to the pole, and the number of poles that went to the base
line; so, too, we do not want to know the size of the penny or
acre so long as we know the number of pennies that went to
the pound and the number of acres that went to the pound-
paying unit, just as it would be immaterial to us, in a matter
of account, whether pennies were fat and heavy like those of
George the Third, or thin and light like those of Queen Vic-
toria; they both now, as before, pass as pennies, and an acre
now passes as an acre did before in ancient times, whatever
it was.

There are, however, two virgæ or poles not coinciding with
any pounds that I am aware of, though there were certainly
virgates or groups of acres corresponding with them. I
mean the poles of 14 and 13 feet. First as to the pole of 14.
At Weston, in Huntingdonshire, the virgate is 28 acres or 14
acres in each field; this would give (proceeding by analogy
to the other cases) 14 feet to the pole, and so it was in fact—
14 of ·3048 m. (see *ante*), which equal 12 of ·355 m. Six poles
of 14 statutory feet, i.e. 305 mm., and which is as old as any
other foot, make the Irish acre. I have never heard of the Irish
acre in Huntingdonshire, though it is found in Wales and
certain counties in England; but, however that may be, the
tax-paying unit at Weston is said in the R.C. to be 4 virgates
of 28 acres or 112 acres, i.e. 14 acres in each field, or if of

'wara' (i.e. fallow not taxed) 8 virgates i.e. 28 acres in each field.   In the H.R., however, of later date than the R.C., the area of the tax-paying unit is put at 6 virgates of 28. The unit of 112 acres and virgate of 28 obviously fits in with the 'middle' hundred of 112 ; but I have in a diagram of a leuga, *ante*, in regard to the Irish acre, shown how this acre may be really derived from and be founded on a 12-foot rod of 355 mm., and be in fact of the duodecimal system originally.   I have also shown how this virgate of 28 local acres of 6,720 square statute yards equals 24 Irish acres of 7,840 stat. yards = 24 acres of 5760 yards of the foot of ·355 m.   The hide of 'wara' (i.e. the fallow untaxed) therefore would be (if of 112 acres) originally 224 acres, and on reference to the H. R. it will be found that there was even at that time one group of 224 acres held by 8 men, i.e. 28 acres to each. The pound-paying unit of 224 acres in a two-course is $2 \times 56 + 2 \times 56$; the pound-paying unit in a three-course would be $2 \times 56 + 56$; so it is possible that the manor might have gone into a three-course in the interval of time between the two MSS.   Six poles of 13 statutory feet of 305 mm. give the 6,760 square yards of the acre in the North of England known as the Westmoreland acre.   From it comes the tax-paying unit or carucate of 104 acres (or if of wara of 208 acres) with the virgate of 13 acres mentioned in the Black Book of Hexham. I have shown *ante* how this, too, is really founded on the duodecimal system, i.e. on a duodecimal rod of ·330 m. to the foot. Six poles of 13 feet of 289 mm. = 6 poles of 12 feet of 314 mm. to the foot gives the Scottish acre of 6,150 statutory English square yards.   In the Anglic Lothian the land was divided into carucates, husband lands, and bovates or oxgangs ; two of the latter of 13 acres each formed a husband land, and 4 of the latter a carucate, which therefore contained 104 acres (see Skene's ' Celtic Scotland,' vol. iii. p. 223).   The foot of 314 mm., it will be seen in the list of feet given in Kelly's ' Cam-

bist,' is one of the feet at Lindau (in fact the Rhineland foot), but side by side with it is the foot of 289, a rod of 13 of the latter equalling a rod of 12 of the former. At Lindau both feet are in use, the foot of 289 mm. being called the 'common foot' and that of 314 mm. being called the 'long foot,' and at Amsterdam there are the rod of 13 and the rod of 12 side by side with each other. I think, therefore, there is good ground for supposing that the Lothian acre is founded originally on the pole of 13 feet of 289 mm., equalling as it does the pole of 12 feet of 314 mm.; and I have shown how by using a duodecimal rod of ·289 m. to the foot 13 acres of 6,240 square yards of that foot equal 12 acres of 5,760 yards of the foot of ·314 m. This 'common foot' seems to have been finally adopted, with 12 of them to the rod (see 'Fragmenta Collecta,' Scotch Statutes, vol. i. 387), but the 13 acres were still retained (see diagram, *ante*) in the oxgang. In a decree in the Scottish Exchequer, 1585 (according to Robertson, 'Historical Essays,' p. 136), it is laid down that 'thirteen acres extendis and sall extend to ane oxgait of land, and four oxgait extendis and sall extend to ane pund land of auld extent.' What this 'pund' consisted of I do not know, but in the West of Scotland the tax-paying unit was the Tirung or ounce land, and each Tirung contained twenty penny lands.

All the virgates in the following lists will be found to follow the decimal, duodecimal, or sexdecimal system, and to correspond with the number of feet in the respective rods from which they spring; and if these 13 and 14 feet rods are rightly accounted for as I have suggested *ante* (see diagrams), then they too will fall into the list of duodecimal rods and virgates as well as the others.

Size of Virgates in Acres Decimal, Duodecimal, and Sexdecimal.   The MS. from which the size is taken appears in the second column.

Rod of 10 feet or cubits	MS.	Size	Decimal	
7½ in each field, or 5 in each of three fields	L. E.	15	Bluntisham	Hunts.
,,	,,	,,	Colne	,,
	H. R.	,,	Halliwell	,,
20, or 10 in each field	L. E.	20	Belesham	Cambs.
	H. R.	,,	Cottenham	,,
	,,	,,	Grantesete	,,
	L. E.	,,	Heilla	,,
	,,	,,	Hardwick	,,
	,,	,,	Lindona	,,
	B. B.	,,	Rykenhall	Durham
	L. E.	,,	Stow	,,
	D. P.	,,	Nasetocha	Essex
	,,	,,	Witham	,,
	H. R.	,,	Houghton	Hunts.
	,,	,,	Riptune	,,
	,,	,,	Stivekel	,,
	L. E.	,,	Pulham	Norfolk
	,,	,,	Rattlesdene	Suffolk
	,,	,,	Weringheseta	,,
	W. P.	,,	Herferton	Warwickshire
15 in each field, or 10 in each of three fields	H. R.	30	Abintone	Cambs.
	,,	,,	Barton	,,
	,,	,,	Brune	,,
	,,	,,	Carlton	,,
	,,	,,	Chingeston	,,
	,,	,,	Crochestune	,,
	,,	,,	Cumbertune	,,
	,,	,,	Ellesworth	,,
	,,	,,	Fordham	,,
	,,	,,	Grantesete	,,
	,,	,,	Haslingfield	,,
	,,	,,	Papworth	,,
	,,	,,	Trumpington	,,
	,,	,,	Warateuorde	,,
	L. E.	,,	Wivelingham	,,
	B. B.	,,	Boldon	Durham
	,,	,,	Newton	,,
	,,	,,	Wermouth	,,
	,,	,,	Roseshopp	,,
	,,	,,	Esyngton	,,
	,,	,,	Shotton	,,
	,,	,,	Tryllesdon	,,
	,,	,,	Seggefield	,,
	,,	,,	Middleham	,,
	,,	,,	Norton	,,
	,,	,,	Bedlington	,,
	,,	,,	Quycham	,,
	D. P.	,,	Belcham	Essex
	,,	,,	Chingeforda	,,
	,,	,,	Berlinga	,,
	,,	,,	Odulvesnasa	,,

Rod of 10 feet or cubits	MS.	Size	Decimal	
	D.P.	30	Canesforde	Herts.
	,,	,,	Calendon	,,
	,,	,,	Erdley	,,
	L.E.	,,	Haddam	,,
	H.R.	,,	Chesterton	Hunts
	,,	,,	Sybiston	,,
	R.C.	,,	Upwode	,,
	H.R.	,,	Conington	,,
	,,	,,	Gidding	,,
	R.C.	,,	Wistow	,,
	,,	,,	Wardebuse	,,
	L.E.	,,	Herthyrst	,,
20 in each field . . .	H.R.	40	Barrenton	Cambs.
	,,	,,	Wimpol	,,
	B.B.	,,	Whitworth	Durham
	L.E.	,,	Hatfelda	Herts.
	H.R.	,,	Breninetune	Hunts.
	,,	,,	Chenebalton	,,
	L.E.	,,	Brugeham	Suffolk
	,,	,,	Brandon	,,
	,,	,,	Berkyngs	,,
	,,	,,	Hecham	,,
Rod of 12 feet or cubits			**Duodecimal**	
6 in each field . . .	L.E.	12	Dodinton	Cambs.
9 in each field, or 6 in each of three fields	E.M.	18	Warating	,,
	R.C.	,,	Halliwell	,,
12 in each field, or 8 in each of three fields. See note at foot of table	H.R.	24	Badburgham	,,
	E.M.	,,	Havochestun	,,
	L.E.	,,	Littleport	,,
	,,	,,	Stretham	,,
	,,	,,	Wilburton	,,
	R.C.	,,	Barthona	Bedfordshire
	B.B.	,,	Clivedon	Durham
	,,	,,	Wermouth	,,
	,,	,,	Neubotil	,,
	,,	,,	Moorton	,,
	D.P.	,,	Wicham	Essex
	P.G.	,,	Frowcester	Gloucester
	,,	,,	Duntesburn	,,
	H.R.	,,	Adone	Hunts
	,,	,,	Adelintune	,,
	R.C.	,,	Stivekel	,,
	,,	,,	Ellington	,,
	H.R.	,,	Glatton	,,
	L.E.	,,	Dereham	Norfolk
	,,	,,	Waltona	,,
18 in each field, or 12 in each of three fields	,,	36	Ely	Cambs.
	,,	,,	Escelforde	,,
	,,	,,	Foxtune	,,
	,,	,,	Gratedene	,,

Size of Virgates in Acres Decimal, &c.—continued.

Rod of 12 feet or cubits	MS.	Size	Duodecimal	
	P.G.	36	Bocheland	Gloucestershire
	W.P.	,,	Sidentune	Warwickshire
24 in each of 2 fields or 16 in each of three fields, and see note at foot of table	R.C.	48	Cranfield	Bedfordshire
	,,	,,	Schytlington	,,
	P.G.	,,	Aldersorde	Gloucestershire
	,,	,,	Boxwell	,,
	,,	,,	Hamme	,,
	,,	,,	Aurenel	,,
	,,	,,	Culne	,,
	H.R.	,,	Bierne	Hunts
	L.E.	,,	Nordualde	Norfolk
	W.P.	,,	Alweston	Warwickshire
Rod of 16 feet or cubits			Sexdecimal	
8 in each field	B.B.	16	Lanchester	Durham
	,,	,,	Wilton	,,
	L.E.	,,	Tyd	Cambs.
	H.R.	,,	Slepe	Hunts
	D.P.	,,	Draiton	Middlesex
	L.E.	,,	Thorpe	Norfolk
	,,	,,	Schipedham	,,
	,,	,,	Agavael	Wales, Venedotian Code. See *post*
16 in each of two fields, see note at foot	R.C.	32	Chatteris	Cambs.
	,,	,,	Pampisford	,,
	H.R.	,,	Hecteslai	,,
	R.C.	,,	Broughton	Hunts
	D.Bk.	,,	Hitune	Lancashire, page 269
	,,	,,	Stochestede	,,
	,,	,,	Sextone	,,
	,,	,,	Chirchdele	,,
	,,	,,	Liderlant	,,
	,,	,,	Hunne	,,
	,,	,,	Tonetun	,,
	,,	,,	Mele	,,
	,,	,,	Uluentune	,,
	,,	,,	Esmedune	,,
	,,	,,	Alretune	,,
	,,	,,	Spec	,,
	,,	,,	Aldemwelle	,,
	,,	,,	Wilbaldeslei	,,
	,,	,,	Uuetone	,,
	,,	,,	Wauretren	,,
	,,	,,	Boltelai	,,
	,,	,,	Achetun	,,
	,,	,,	Fornebei	,,
	,,	,,	Emuluesldel	,,
	,,	,,	Hoiland	,,
	,,	,,	Daltone	,,
	,,	,,	Schelmersdele	,,
	,,	,,	Erengermele	,,

Rod of 12 feet or cubits	MS.	Size	Duodecimal	
	D. Bk.	32	Otegrimele	Lancashire
	,,	,,	Latune	,,
	,,	,,	Herletune	,,
	,,	,,	Malinge	,,
	,,	,,	Bartuna	,,
	,,	,,	Heleshall	,,
	L. E.	,,	Glamisford	Suffolk

Note referred to.—In regard to the virgates of 24 and 48, they might be, and probably were in some cases, really sexdecimal, representing 8 and 16 in each of three fields; though, of course, in a system of open-field cultivation and strips it would be easy to divide any virgate or collection of virgates from a two-course into a three-course shift. It must always be remembered that sometimes only the taxable area is stated in the MS., so that 30 may mean 32, 20 mean 24, and so on. See the case of Great Shelford, *post.*

'Let us now see how well adapted such a system was in the beginning of things for a tribe or body of men having an open-field cultivation, possibly under co-aration, and moving about from spot to spot, and pursuing the methods described by Tacitus in the ' Germania,' xxvi : ' Facilitatem partiendi camporum spatia præstant. Arva per annós mutant, et superest ager : nec enim cum ubertate et amplitudine soli labore contendunt, ut pomaria conserant et prata separent et hortos rigent : sola terræ seges imperatur.' So, too, Cæsar, ' De Bello Gallico,' vi. c. 22 : ' Neque quisquam agri modum certum aut fines habet proprios ; sed magistratus ac principes in annos singulos gentibus cognationibusque hominum qui una coierunt quantum et quo loco visum est agri attribuunt atque anno post alio transire cogunt.' With the Angli, the full pole land or, to use the words of old MSS., the ' plena virga,' *was in acres, generally, in each field of the same number as the pole or virga was itself in feet ; whatever the pole was as used by any manor in feet, such was the plena virga in acres in each field*, i.e. in the sown field and in the field lying ' ad warectum,' and to be sown in the following year. A Mercian household would receive 16 acres, i.e. 16 acres in each field, and for it a pole of 16 feet would drop 192 times; when the pole, or virga, fell for

the last time, the household's assessment on the land so measured would be 32 pence, and it would hold 16 acres in each of the common fields, 32 Mercian pence equalling 30 Norman.

For the mansio of the Angli—i.e. the 'hida' of Bede—the pole of 18 feet would fall 40 times in each field, and 36 acres would be thus allotted with the yearly contribution of 36 pence, being the eighth part of the pound-paying unit of 288 acres, 36 Anglo-Saxon pence equalling 30 Norman.

For the like mansio of the Frank or Alamannic settler, a pole of 15 feet would drop 40 times in each field, and at the end of the measuring it would hold, by right, 30 acres, or 15 in each field—i.e. the eighth part of a pound-paying unit of 240 acres—and would be bound to contribute the eighth part of the common pound of money or food—or 30 Frank pence of 24 grains to the penny.

Of course I have spoken here of original allotments made by a people in full power over the land, and changing about. The time would come, no doubt, when such a people would settle, and a mansio, or household, would continue to hold the same land. After a further lapse of time they would be attacked, and partially, or entirely, driven out by the other tribes or peoples, who would either reallot the land as before or would regroup the strips already existing.

This regrouping would of necessity follow the divisions of the respective pounds. One of the groupings of the British, viz. in North Wales, was, as we have seen, founded on a rod of 16 feet, of 9 inches to three palms, thus making up 256 acres to the pound-paying unit. This grouping, if it existed before, certainly survived the Roman occupation ; and it was not till the country was reoccupied by the Franks or some other people, dividing their pound into decimal divisions, comprising subdivisions of duodecimal units, and by another people—viz. the Anglo-Saxons—dividing their pound into

duodecimal divisions with subdivisions of decimal units, that the land was regrouped in those places where they drove the old inhabitants out, and such regrouping would follow the divisions of the respective pounds and virgæ of the new comers. Whether the original allotment remained undisturbed, or whether the land was regrouped, it would still be cut up, as before, into 'gavaels,' or virgates corresponding with the length of the pole.

I show below the libra, or pound of silver, and its different divisions, as described, and the areal hida, or terra ad carucam, divided or regrouped, according to the size of the acres, into full virgates or gavaels, at the time of Domesday.

FRANK ? OR DANISH ?

240 pence (32 wheat grains to penny) to libra.

A

(Drusian.)

Decimal rod of ten feet of 334 mm., 6 falls to acre and making 4,840 stat. yards of ·3048 to the foot.
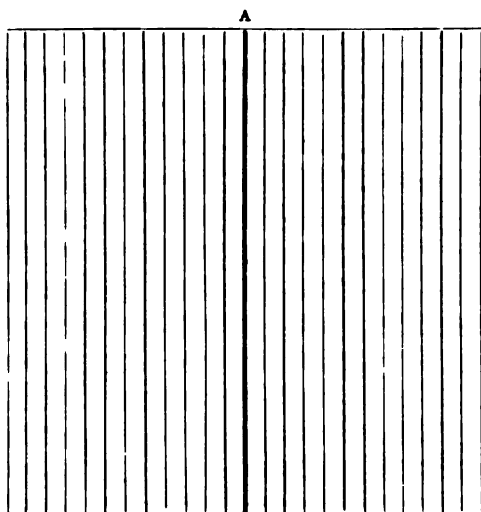
24 strips of 10 acres each = 10 pence

ANGLO-SAXON.

288 pence (20 grains Troy to penny) to libra.

B

Duodecimal rod
of 12 feet of 279
mm., 6 falls to
acre of 4,840
stat. yards.
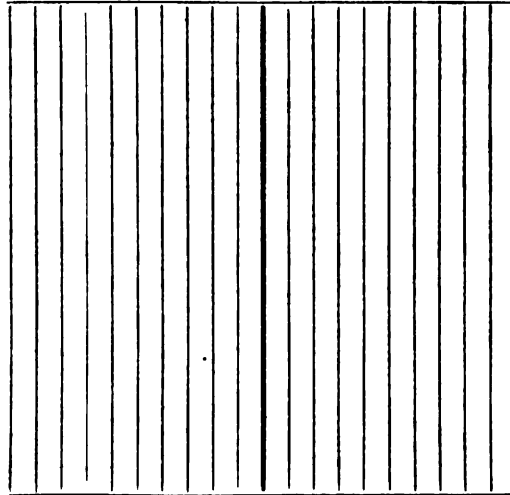
20 strips of 12 acres each=12 pence.

MERCIAN.

[256 (30 wheat grains to penny) pence to libra.

C

Sexdecimal rod of
16 feet of ·3048
m., 16 falls to
acre of 10,240
stat. yards.
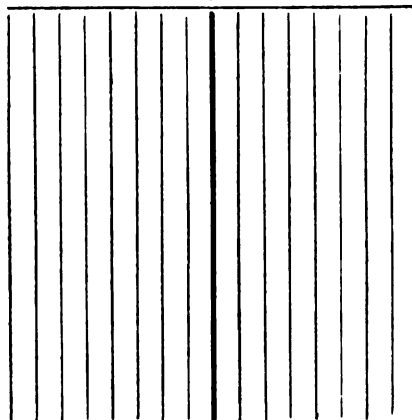
16 strips of 16 acres each=1 ounce of silver, or 16 pence.

The land on the right side of the thick line represents fallow
land ; that on the left, sown land ; and the diagrams A B C

represent imaginary pounds and pound-paying units. The acres were really all dispersedly lying in the open fields, as stated before, and they are only shown as above for convenience in explanation. There would be 12 full virgates or plenæ terræ of 20 acres in unit A, 10 full virgates or plenæ terræ of 24 in unit B, and 8 full virgates or plenæ terræ of 32 in unit C. As to how they fitted into a larger unit or leuga, see, *ante*, diagrams of leugæ.

It will be observed that I have subdivided the diagram in each case into two divisions, representing a two-course shift sown and fallow, i.e. taxpaying and not taxpaying (the reason of which will be detailed further on). If we suppose that the sown portion carries all the taxation, and that the 120 sown acres in diagram A are divided into 12 units or half-virgates of 10 acres each and 20 pence (each acre thus representing two pence), it is plain that every time the pole dropped on the ground it represented one farthing in relation to the whole hide and pound of 240 (or 1 halfpenny if considering the sown land only). The land being plotted out into strips and arranged as far as possible so that the acre should be of the oblong shape, of the proportion of 1 to 10 or 12, the allotment took place; one household's land would not lie together: we may be very sure that the more the ownership of the rood strips was scattered the more equitable the division would be; but for every rood strip it would be liable to 1 farthing, i.e. ½ penny on the sown portion. The number of the strips contained in a virgate that a man would take would depend upon whether he worked alone or whether others joined with him. If one worked alone on a system like that in diagram A, as far as number of acres is concerned, he would probably have five acres, or even less, in each field; if two worked together, then they would have ten acres in each field, paying in the first case 10*d.* and in the latter 20*d.* So in regard to diagram B, the Anglo-Saxons, dividing

their pound into 288 pence, divided a larger hide (and virgate) than A (as far as number is concerned), namely 288 acres. This allotment of land, called a ' virgate,' was supposed to be as much as was sufficient to support one household, and at the time of Bede was called a ' hide,' and even in Dorsetshire and Cornwall, &c., it was still called a hide in Domesday, though the geldable unit of taxation was also called a hide or carucata.   In the same way in Ireland the quarter of a townland is often called a townland ; so too in North Wales the trev was the quarter of the pound-paying mænol, but in South Wales the trev takes the place of the mænol.

Each acre of the virgate was divided, as I have shown before, by smaller virgæ ; therefore the virgate was practically also divided throughout its entirety, each subdivision being called a bovata, and some confusion has arisen from these subdivisions being also called virgates. The bovates represented the yearly work of one ox, and if one man or more supplied one ox there would be more than one man at work on one virgate, and where this was the case the co-partners were called ' socii' and ' participes' ; but in Domesday the full virgate is treated as one man's estate, and, indeed, is sometimes called a ' villanus' or ' servus.'

These virgates, so often alluded to in old MSS., have apparently been (from the time of Agard to the present time) a source of some confusion. They have been supposed to be the virgates, or *quarters*, of the Domesday geldable hide, whereas they undoubtedly were the portion allotted, as I have shown, in the open fields of any one particular manor (but lying dispersedly in acre and rood strips) to the homines of the lord long before the time of D. Bk. The component parts of a virgate being intermixed with those of other virgates, each was bound by necessity to follow the course of cropping (two, three, or more) in vogue, for the time being, in a manor. The fact that the open fields consisted

of uninclosed acre or rood strips independent of each other, gives a clue to the question why the size of the virgates should vary in different manors. These are all, as a rule, found to consist of 8, 10, or 12 acres, or a multiple of 8, 10, or 12 acres. They are either in a group of 8, 16, 24, 32, 48, 64, in a group of 10, 15, 20, 40, 60 acres, or in a group of 12, 18, 24, 36, 48, 72 acres, the first group representing perhaps the old British, the next group being Frank, and the last Anglo-Saxon, either in original allotment or by regrouping of old strips. The Angli had one method of counting and dividing their unit (differing from that of their neighbours) by which 144 was 120 with them in units. This system is found even in D. Bk. itself, viz. T. 1, fol. 336ᵃ: 'Hic numerus anglice computatur I centum pro CXX'; and again in the same folio: 'CC anglico numero CCXL.' When the land was first occupied by the Angli, Jutes, and others, these acre and rood strips—even where originally laid out by Britons, like the Welsh 'erws,' and existing perhaps long before—would (where not replotted) be distributed among the crowd of adventurers; and it is almost sure that they would then redistribute according to the system of counting used by the new owners, corresponding as it would with the divisions of their pound so as to fit in with it. In some settlements the new men, who divided their pound into shillings in decimals and pence in duodecimals, would receive 10, 20, or 30 acres; the Angli and their cousins, who counted by the long hundred and divided their pound in shillings of duodecimals and pence in decimals, would take 12, 24, or 36 acres, which would correspond to the divisions of their respective pounds. Where the original inhabitants were not disturbed, the old grouping of acres would still remain. At any rate, if this surmise is correct (and there are good grounds for accepting it as correct), the size of the virgate, if well ascertained, may be somewhat of a clue to the problem

how, after the destruction or absorption of the ancient popula-
tion, our villages were respectively repeopled, and by whom.
When D. Bk. was made, it was absolutely necessary to adopt
one or other of the three systems as the basis of it ; and
120 acres for the geldable hide, and 15, 20, or 30 acres, &c.
for the geldable virgate, seems to have been adopted for
the purposes of taxation—the three systems being made to
fit to one common standard, both in money and land, by the
process alluded to in the latter part of this paper.

There appears to be some confirmation of this view in an
entry in the ‘Hundred Rolls,’ vol. ii. page 561. At Shippere,
in the county of Cambridge, William de la Haye is said
to hold a hide ‘quæ continet sexies viginti acras terræ et
prati.’ This statement is immediately followed by another,
running thus : ‘Villani ejusdem quilibet eorum tenet dimidium
virgatæ terræ custumariæ quæ continet XVIII acras.’ Unless
this statement, that the hide contained 120 acres, had hap-
pened to be placed so close to the further statement that
a virgate was 36 acres, the entry might, and probably before
now would, have been quoted as an authority that the area
of the Domesday geldable hide at Shepreth was four times
the amount of 36—i.e. 144 acres—as has been incautiously
done in regard to similar entries in the ‘Hundred Rolls.’

The Hundred Rolls of Huntingdonshire state a ‘hide’
(i.e. a *terra ad car.* and not the geldable hide) to consist, in
certain manors, of a certain number of virgates, and they
also state that a virgate in the respective manors contained
respectively such and such a number of acres ; but the latter
virgates are in actual area no more the virgates of the Domes-
day *geldable hide*, or unit of assessment, than the virgate of
Shippere, of 36 acres, could be in area the virgate of a
geldable hide of 120 acres, because the areal virgate of 36
contained six acres which was *extra hidam* altogether, as will
be shown later on. Though the area of one virgate might

not be altered, its component parts might be regrouped and rearranged : for instance, the component parts of three virgates might be so arranged on a change of cropping as to form two virgates—thus, taking three virgates of 20 acres in a two-course shift on the manor : going into a three-course they might be arranged thus $(20 + 10) + (20 + 10) = 2$ virgates of 30 ; so also 2 virgates of 24 might become 3 of 16. This would be especially easy in those cases where the villani held half-virgates.

Many false calculations as to the geldable unit of D. Bk. have been made on the assumption that the virgate of D. Bk. was 30 acres in all cases. Great caution is therefore necessary before we accept as conclusive of the matter the statement in MSS. (such as D. Bk., H.R., and R.C.) that a virgate is 30 acres, &c., in area. In very many cases these MSS. speak only of the taxed land, there being an addition of one-fifth at least (see *post*, 'Anglicus numerus'), and if of *wara* a considerable deal more (a third or a half), to be made before we arrive at the total area contained in the virgate. There are instances to be found in the MSS. which give the virgate as 30, but which, on reference to MSS., manifestly speak only of the geldated part of a virgate 36 in area. The same system of grouping into money-paying units existed in Scotland under the name of a ' Tirung ' or ounce land each, containing 20 penny lands, or a Scotch pound of one shilling and eight pence of our money.

III. THE AREAL 'HIDA,' 'TERRA AD CARUCAM' OR 'CARUCATA' OF THE LORDS AND THEIR MEN.

Having fully discussed the method on which the land was allotted and distributed in ancient times before Domesday in the remote past, it follows in due order to look at the system in actual working at or near the time of Domesday.

The description of most manors in D. Bk. begins with a statement showing the number of hides, car., or carucatæ, at which the whole manor was taxed. This statement is followed by another, giving the number of such hides, &c., as were *in dominio* ; it is plain, therefore, that, after deducting the area of such of these hides of the demesne as were geld-ated, the remaining hides, &c., or rather their area, must have been held by the homines of the lord, freely and ser-vilely, jointly or in severalty.

If we thus know the number of hides, *ad geldum*, left for the homines after such of the lord's hides in demesne as are *infra hidam*—i.e. taxed—are allowed for, we can thus find the area of the whole of their holdings, which, if the system of pound-paying units was still in force, and we have no reason to suppose otherwise, must, as far as the *terræ ad carucam* is concerned, be so many hides of 120 acres, in some cases, and in others the total of so many imaginary plots of 120 acres each *ad geldum*, plus an equal number of imaginary plots of 120 acres *extra hidam* and *ad warectandum*, in a two-course manor, and of 60 acres in a three-course manor ; in other words, so many plots of 120 acres, or 240 acres each in the one case, and 180 each in the other.

If each *terra ad carucam* represents a certain number of virgates working together, it follows that, if the number of plough lands or *terræ ad carucas* of the tenants given in D. Bk. is multiplied by the number of virgates one of them contained, the result will show the total number and size of the virgates into which the whole area of the pound-paying units or the imaginary plots of 120, 240, or 180 acres, each worked by the homines, was divided. See, *post*, some entries from D. Bk. thus worked out. The foregoing and following remarks must, however, be considered in connection with the system of grouping into 8, 10 and 12, and their multiples, and the remarks made, *post*, under the heading of ' Anglicus numerus.'

The *areal terra ad carucam* of D. Bk. was thus the area of the land under the plough in any one manor, expressed in D. Bk. by a statement of the number of *terræ* into which it was divided, such *terræ* being, however, sometimes called *carucatæ*. D. Bk. not only gives the number of ploughs, but subdivides such statements into lord's ploughs and tenants' ploughs—such last-mentioned ploughs being generally, but by no means always, an association of two or more virgates of the manor to work one *terra*. So also very often there is, in the same manor, a double statement in D. Bk., the one statement treating each separate holding with one ox even as a single *terra*, and the other treating the association of the oxen of two or more virgates, for purposes of work, as one *terra*. It requires, therefore, some attention in each case to ascertain whether single estates or persons are meant, and whether single virgates are called *terræ* and *carucatæ*, or whether an association of two or more virgates is so meant. This will be more particularly alluded to later on under the heading ' Villanus and Servus.'

The area covered, even by the tenants' associated ploughs (weighted as they would be by the additional work that they were bound by their *servitia* and *consuetudines* to do on the lord's demesne), would be less than the area covered by the lord's ploughs thus assisted. The *terra ad carucam* of the whole manor (being the area covered by the lord's ploughs, thus assisted, plus the *terra ad carucam* covered by the tenants' ploughs) would therefore, as regards any one plough, be the mean of all the ploughs, demesne and servile. For instance, the lord of some manor might have an area of 960 acres, covered by six ploughs, each taking 160 acres : and the homines of the same manor might also have an area of 960 acres covered by twelve associated ploughs (four virgatarii forming one plough) each taking 80 acres : the two sets covering together 1,920 acres (all in open fields, with the acres and roods inter-

mixed), being a mean of 120 acres to each plough, demesne and associated. The *terra* in such a manor would be expressed in D.Bk. as *terra ad carucam* for eighteen ploughs ; or, if each virgate of the homines was treated *per se* as a *terra*, then as *terra* for fifty-four ploughs ; or it might be expressed in both ways.

That this is so must be obvious ; but, further, in some Inquisitions of Manors the assistance rendered by the *carucæ adjutrices* of the villani is itself estimated by *carucæ*. It is so estimated in the Inquisitions of Manors contained in the Ramsey Chartulary, at the Record Office; for instance, in that of Slepe (St. Ives) (Rolls Series, page 282), after setting out the several *culturæ* of the demesne, it continues thus :— ' quæ quidem culturæ coli possunt sufficienter cum tribus carucis propriis, et consuetudine carucarum villæ, et duabus precariis, quæ consuetudo ad valentiam trium carucarum æstimatur.'

If reference is made to D. Bk. it will be noticed that the terms *caruca, carucata* and *terra ad carucam* are of constant occurrence ; but, if careful discrimination does not attend the user of these words, the same mystery and ambiguity will follow which have baffled attempts to estimate the areas referred to in D. Bk.

The words *caruca, carucata, terra ad carucam*, undoubtedly mean the land of one plough ; but, as I have shown, *ploughs are not all of the same strength*. There would the smallest plough or *caruca* of all, consisting of one ox, as at Trewallern, in Cornwall, D. Bk. 123ª, where two of such *carucæ* joined together and worked one *caruca* consisting (as appears by the Exon D., page 214) of the two oxen.

There would be the plough of one virgate consisting of two oxen, which is repeatedly alluded to in D. Bk. as a *caruca* ; for instance, at Derbei, D. Bk. tom. i. fol. 269, ' *in unaquaque hida sunt vi caruc. terræ*,' meaning that in each

hide of 120 acres there were six virgates of 20 acres : so also
(at D. Bk. tom. i. fol. 253^b) we read that in Medeltune, in
Leicestershire, ' *Ibi sunt vii hidæ et una carucata terræ et una
bovata. In unaquaque hida sunt xiiii carucatæ terræ et dimi-
dium* ' ; the explanation being that the hides were in areas
' *juxta estimationem Anglorum,*' i.e. by the greater hundred,
viz. 144 acres, giving virgates of about 10^a, and if the land
was *wara*, then 288 acres, giving virgates of 20^a. There
would be the associated ploughs or *carucæ* of the homines
(containing 1, 2, 3, 4, or more virgates) making up terræ of
60, 72, 80, 90, 96, 108, &c., which very often are meant when
the word *carucata* is used in regard to the terræ of the
homines. There would be the *libera carucata* or the terra
free from services on the lord's land. There would be the
supposed *carucata* of the whole manor of 120^a, which common
standard D. Bk. calls a ' *hida,*' ' *terra ad carucam,*' or ' *carucata
ad geldum,*' and uses for the purposes of taxation, and which
is the subject of this paper. There would be the lord's
' *carucata,*' often double the size of the terra of the homines,
but varying according to the amount of help received from
the ' *carucæ adjutrices* ' of the homines, and depending,
amongst other things, upon how far such services had been
commuted for money payments. Lastly, there would be the
pattern plough of the whole manor indicated by Fleta's
carucate, consisting of 160 acres in a two-course manor, and
180 in a three-course manor. Every one of the foregoing
' *carucatæ,*' from the one-ox plough of Trewallern to Fleta's
carucate, is to be found in D. Bk.

The consideration of this fact throws light on the word
' *hida.*' If the supposed original and well-known meaning
most often attached to the word *hida*, viz. the land of one
plough, be accepted, then all the foregoing remarks might, in
substance, if not in name, apply as fully to the word *hida* as
to the word *caruca* and *carucata* ; and the *familia* of Bede

Y 2

(as suggested in the beginning of the paper) might rightly be construed *hida*, and *hide land*, and would be the same as the *carucata* or virgate of Derbei and Medeltune, the Welsh tydden with its gavael, or the Irish balliboe. Further, we should have the *hide* or *terra* of the associated plough of two or more virgates (as it and the word *carucata* are, in fact, used in D. Bk. itself in regard to manors in some counties : see the Tables *post*) ; we should have a *libera hida* answering to the *libera carucata*, and we should also have the subject of this paper, viz. the average standard and uniform geldable *hida* or *terra ad carucam* or *carucata* of D. Bk., viz. 120 acres for taxational purposes, the lord's hide, and the sown land and idle shift, or Fleta's carucate.

Upon a close examination of D. Bk., this supposition is found to be true in fact. In the manorial surveys of most counties contained in D. Bk., the taxable area (expressed by a certain number of geldable *hidæ*, *car.*, or *terræ ad car.*) is placed first, and then such area is subdivided into or spread over *terræ ad car.* ; thus in Bedfordshire, '*Ammetelle pro v hidis se defendit. Terra est viii car.*,' and in Nottinghamshire, Werchesope '*Habet Elfi iii car. terræ ad geldum. Terra vi car.*' But in very many manors in the counties of Dorset, Middlesex, Surrey, Sussex, York, and in Wiltshire, and perhaps elsewhere, the foregoing formula is reversed, and the actual number of *terræ* into which the whole area is divided is placed first under the name of '*hidæ*' or '*carucatæ*,' and the number of taxable areas of 120 acres each is placed second under the terms '*terra ad x car.*,' or '*hanc possunt arare x car.*,' such *car.* implying uniform areas of 120 acres each. For instance, in Dorsetshire, '*Pidere geldavit pro x hidis ; terra est vi car.*,' No. 167. So also in York, Rodreham '*Habet Acun i manerium de v carucat. ad geldum ubi possunt ere iii car.*' If Pidere had been in Cambridgeshire, it would have been returned thus : *Pidere se defendit pro vi hidis ; terra*

est x car. But further, this supposition is proved in another way : namely, by cases in D. Bk. where the word *hida* is *in the same survey* used in more than one sense. The survey of the manor of Pavton, in Cornwall (D. Bk. 134ª, Exon D., p. 181), is a case in point. In this survey we find the word *hida* used as meaning (1) the geldable hide or area of 120 acres, (2) the lord's hide or car., and (3) the virgates or car. of the villains. The actual survey runs thus in the Exon D., '*In ea sunt xliiii hid. et reddidit gildum pro viii hidis ; has possunt arare insimul lx car. De his habet episcopus in dominio i hid. et iii car. et villani habent xliii $\frac{hid.}{carr.}$ et xl car.*' The solution is this. There were 8 (*Anglico numero*) geldable hides of 120 + 24 (*extra hidam*), or a total of 1,152 acres, 192 of which would be *extra hidam.* See, *post,* 'Anglicus numerus.' There were 44 *hidæ* or *car.,* i.e. 1 lord's hide or car. of 120 acres in demesne and 43 hides, car., or virgates of 24 acres belonging to the villains ; but from the statement '*has possunt arare lx car.*' we are made aware that the total area must have been larger than the above, and on examination the manor is found to be in a three-course. Working this out, we find that 1,152 + 576 = 1,728 (3 × 576), and that this divided by 72 car. (i.e. 60 *Anglico numero*) gives as the virgate 24, as before. If from the above area of 1,728 there is deducted 180 (the lord's geldable hide of 120 plus 60 idle shift), there remains 1,548, and if this is divided by 43 it gives 36 as the villains' *terra* (24 + 12 idle shift). The peculiar entry '*xliii $\frac{hid.}{carr.}$ et xl car.*' shows, if not meant as an erasure, that 'hid.' and ' carr.' meant the same thing ; moreover, if the total area of 1,728 is reduced one-sixth, as it would be reduced (see, *post,* 'Anglicus numerus') by the D. Bk. authorities, it would appear as 1,440 (960 + 480) ; and when this is divided by the lx car. (*has possunt arare lx car.*), the virgate of the

manor of 24 again appears.   There is a case in Surrey which shows that an area, which had been expressed *tempore Regis Edwardi* in hides (meaning thereby virgates), is converted in D. Bk. into the uniform hide of 120 for taxational purposes. The case is that of Estreham, which is entered in D. Bk. as follows : ' *Estreham tunc se defendit pro v hid. et modo similiter pro i hid. et i virg. terræ.*'   It will be noticed that 6 (i.e. 5 *Anglico numero*) hides or virgates of 24 = 1 hid. of 120 + 1 virg. = 144, and the sixth part being taken off as *extra hidam* (see *post*), there remains the geldable area of 120 acres or 5 virgates of 24 acres.

In those few cases in which there were hides of appropriated pasture, as at Cottenham, the area was most probably of *wara*, i.e. 240 ; speaking generally, however, only the *terra ad carucam* was taxed ; and even perhaps Cottenham Common might, as *terra ad carucam* unbroken, be looked on as such. It necessarily follows from these facts—and the fact, if true, that the D. Bk. geldable hide, *terra ad carucam*, or carucate, as distinguished from the areal hida etc., was a fixed quantity of 120 acres—that Eyton and others have erred largely in regard to the geldable hide ; that Kemble's hide of 40 acres was nothing more than half a *terra ad carucam* ; and that the so-called 'Gheld acre,' which is said to be in area five acres, is a myth. (See Eyton ' on the Domesday of Dorset,' pp. 14, 15, etc., and Kemble, ' Saxons in England,' Appendix B., p. 490.)

IV. THE UNIT OF ASSESSMENT.

As Domesday Book was a survey made of all geldated lands and manors comprised in it with a view to the taxation thereof—in other words, a schedule of tax-paying units—there must have been in it (as in every other rate-book) some one uniform unit of assessment ; and there is no more ground for

saying that the old pound-paying unit was disregarded and another taken which varied in extent or contained an uncertain number of acres, than in saying that a pound of an income-tax schedule might as a unit of assessment contain twenty shillings in one county, and twenty pence in another.

This pound-paying unit of assessment (uniform as it was in size and character all over England), in Domesday Book is, however, indicated in different ways in different counties therein. In some counties this unit is indicated by the word 'hida' ('se defendit pro *x* hidis'), in others by the expression '*x* carucatæ ad geldum,' in others by the expression '*x* car. possunt ere,' and in others by 'terra est *x* car.:' but in every case it will be observed that, supposing the word 'hida' to be equivalent to the word 'carucata' (as I have no doubt it is), the unit of assessment is everywhere linked as it were with the word 'caruca,' indicating that the taxation of the country as far as the bare land was concerned, was in a great measure, though not altogether, governed by the extent of it under the plough. So, too, in Ireland, being a pastoral country, it appears by the Brehon laws that their divisions of land and money are linked with the cow as the chief grazing animal. As the above remarks apply to the whole of England, and as it is absolutely necessary in every entry in Domesday Book to find out which particular portion of it indicates the unit of assessment, I have set out here entries of illustrations taken from a county in the south, the east, the west and the north of England, as stated in D. Bk. and the Exon D. Bk. These entries are to be found (with others from every county in England) in a paper read by me, in February 1885, before the Cambridge Antiquarian Association, and is printed in their Communications, Vol. VI. (No. XXVII.). I must again repeat, however, that in the entries referring to most counties the unit of assessment, i.e. the number

of the geldable hides or carucates is placed first in D. Bk., and then the number of terræ ad carucam on which the taxation is laid is stated: for instance, in Rutland D. Bk. fol. 293ᵇ, we have the entry 'in Alfuodeston Wapentake sunt II Hundrez. In unoquoque XII carucatæ ad geldum et in unoquoque XXIIII carucæ;' but in Dorset, Middlesex, Yorkshire, Wiltshire, and Sussex, the returns are the reverse of this: the 'terra ad carucam' and the 'car. potest ibi ere' appear to represent the standard geldated area or unit of assessment and the word 'hida' in Dorsetshire, Middlesex, Sussex, and Wiltshire, and the 'car. terræ ad geldum' in Yorkshire, are used to express the actual area of the plough lands on which the taxation is laid, and the terms 'terra est car.' in Dorset, Middlesex, Sussex, and Wiltshire, and 'car. potest ere' in Yorkshire imply what the geldable hide or carucate implies in other counties.

Immediately following these entries I have placed those portions of the tables in my Cambridge paper which go to explain such entries and the subsequent parts of this paper. In those tables it will be seen that I speak of a geldable 'hide,' &c., of land ; by that is meant so much land as the yearly value of it amounts to nominally I libra or pound of silver in weight. I must, however, warn my readers that when I talk of the pound-paying unit of assessment I refer only to the bare land, i.e. the gafol gelding land or the land that was valued in old days at 1*d.* per acre ; everything else, such as mills, rents, ferries, fees of court, renders of any kind, are an addition of items totally apart from the pound-paying unit, though the whole, no doubt, is included in the 'summa,' or the 'totum valet,' or 'in totis valentiis,' as the case may be.

CAMBRIDGESHIRE.

No.

1 *Belesham*, 190ᵇ. Ibi sunt IX hidæ. Terra XIX car. In dominio V hidæ et ibi sunt V car. et II plus poss. esse. Ibi XII vill. et XII bord. cum XII car.

2 *Burewelle*, 192ᵇ. Ibi X hid. et I virg. Terra est XVI car. In dominio III hidæ et XL acr. et ibi IIII car. Ibi XLII vill. et dim. cum XII car.

3 *Abintone*, 194ᵃ. Ibi V hidæ. Terra est VIII car. In dominio II hid. et dim. et ibi sunt III car. Ibi XI vill. et V bord. cum V car.

4 *Bertone*, 200ᵃ. III hid. et dim. Terra est VI car. In dominio III car et III vill. cum XIII bord. habent III car.

5 *Badburgh*, 194ᵃ. II hid. et dim. et XXIIII ac. Terra est IIII car. In dominio est una et XVII vill. et III bord. cum III car.

6 *Barentone*, 193ᵃ. II hid. Terra est III car. In dominio I hida et ibi I car. Ibi VIII bord. et V cot. cum II car.

7 *Brune*, 200ᵇ. Pro XIII hid. se defend. Terra est XV car. In dominio V hid. et ibi sunt II car. et aliæ II poss. ere. Jbi VIII vill. cum IIII bord. et VII sochis qui tenent IIII hid. habent IIII car. et adhuc VII poss. fieri.

9 *Carletone*, 202ᵃ. III hid. Terra VIII car. In dominio I hid. et dim. et ibi sunt II car. et XII vill. cum II bord. habent VI car.

10 *Chingeston*, 189ᵇ. I hid. et III virg. Terra est II car. In dominio est una et unus vill. et III bord. cum I car.

11 *Coteham*, 191ᵇ. Pro X hid. se defend. Terra est VIII car. In dominio VI hid. et I car. Ibi XVI vill. et X cot. cum VI car.

12 *Crochestune*, 202ᵃ. VI hid. Terra est IX car. et dim. In dominio III hid. et ibi sunt II car. et tertia pot. fieri. Ibi VII vill. cum VII bord. et II cot. habent III car. et adhuc III et dim. poss. fieri.

13 *Cumbertone*, 189ᵇ. Ibi II et dim. Terra est V car. In dominio sunt duæ et tertia potest fieri. Ibi VII vill. et V bord. cum II car.

14 *Dodinton*, 191ᵇ. V hid. Terra est VIII car. In dominio II hid. et dim. et ibi III car. Ibi XXIIII vill. cum V car. Ibi VIII sochi de I hida.

16 *Ely*, 192ᵃ. Pro X hid. se defend. Terra XX car. In dominio V hidæ et ibi V car. et VI potest fieri. Ibi XL vill. quisque XV acr. cum XIIII car.

17 *Elesworde*, 192ᵇ. Ibi IX hidæ et I virg. et V acr. Terra XXII car. In dominio IIII hidæ et ibi III car. et quarta potest fieri. Ibi XIX vill. et XVII bord. et I franc. habens III virg. Hi simul XVIII car. habent.

18 *Fordham*, 189ᵇ. Pro V hid. et dim. se defend. Terra X car. In dominio II car. et IIII adhuc poss. fieri. Ibi VI vill. et XV bord. de XV acris cum IIII car.

19 *Escelforde*, 191ᵃ. Pro IX hid. et XXIIII acris se defendit. Terra est XI car. In dominio V hidæ et ibi sunt III car. Ibi XX vill. et VII bord. cum VIII car.

20 *Foxetune*, 193ᵃ. V hid. et XL acr. Terra est VIII car. In dominio I hida et XL acr. et ibi sunt II car. Ibi XVI vill. et XI bord. cum VI car.

21 *Grantesete*, 196ᵃ. II hid. et III virg. Terra est VI car. In dominio sunt III et III vill. et dim. cum XIII bord. et XVI cot. habent III car.

22 *Gratadene*, 191ᵇ. Pro V hid. se defend. Terra est IX car. In dominio II hidæ et dim. et ibi I car. et II poss. fieri. Ibi VIII vill. et III bord. cum VI car.

CAMBRIDGESHIRE—*cont.*

No.

23 *Helle*, 192ᵃ. Ibi II hidæ. Terra est V car. In dominio I hid. et I virg. et X ac. et ibi III car. Ibi X vill. cum II car.

24 *Hectelei*, 196ᵃ. III hid. Terra est IX car. In dominio I hid. et dim. et ibi sunt III car. et VI vill. cum X bord. habent VI car.

25 *Harduic*, 191ᵇ. III hid. et I virg. et XII acras. Terra est VI car. In dominio I hid. et dim. et XII acras et ibi sunt II car. Ibi VII vill. cum IIII car.

26 *Haslingefelde*, 197ᵃ. V hidæ. Terra est VI car. In dominio sunt duæ et VIII vill. cum XVIII cot. habent IIII car.

27 *Havochestun*, 191ᵃ. Pro VIII hid. et dim. se defend. Terra est XII car. In dominio V hidæ et ibi sunt IIII car. et XVI vill. et IIII bord. cum VIII car.

28 *Lindone*, 192ᵃ. Ibi IIII hidæ. Terra est VI car. In dominio II hidæ et dim. et ibi IIII car. Ibi II sochi et XIIII vill. cum II car.

29 *Littleport*, 191ᵇ. Tenet Abbas de Ely pro II hid. et dim. Terra est VI car. In dominio I hida et ibi II car. Ibi XV vill. et VIII cot. cum IIII car.

30 *Melbourne*, 191ᵇ. II hidæ et I virg. terræ. Terra est V car. In dominio I hid. et I virg. et ibi I car. et dim. et dim. potest fieri. Ibi VI vill. et IX bord. cum III car.

31 *Pampisford*, 191ᵃ. II hidæ et III virg. et dim. Terra est VI car. In dominio I hid. et I virg. et dim. et ibi sunt II car. Ibi XII vill. et V bord. cum IIII car.

32 *Papeworde*, 195ᵃ. Ibi V hidæ. Terra est VII car. In dominio II hidæ et dim. et ibi sunt II car. Ibi X vill. et V bord. cum V car.

33 *Suafam*, 190ᵇ. III hid. Terra est V car. In dominio I hida et III virg. et ibi sunt II car. et V vill. et II bord. cum III car.

34 *Stow*, 192ᵇ. II hid. Terra est V car. In dominio II car. sunt et V vill. et VI bord. cum III car.

35 *Stretham*, 191ᵇ. Pro V hid. se defend. Terra est IX car. In dominio III hid. et ibi IIII car. Ibi XII vill. quisque X acr. et XI vill. de I hida hi habent V car.

36 *Trumpintone*, 202ᵃ. II hid. Terra est III car. In dominio I hid. et I car. et IIII villani cum I bord. V cot. cum II car.

37 *Trepeslau*, 191ᵃ. VI hid. et dim. Terra est VIII car. In dominio III hidæ et ibi sunt III car. Ibi XII villani et V bord. cum V car.

38 *Warateuorde*, 193ᵇ. II hid. et II part. unius virg. Terra est III car. In dominio I hid. et II part. unius virg. et dim. car. est ibi et alia dim. pot. fieri. Ibi II cot. et XV bord. cum II car.

39 *Waratinge*, 190ᵇ. Ibi IIII hid. et dim. Terra est VII car. In dominio III hid. et ibi II car. et adhuc duæ poss. fieri. Ibi VI vill. et III bord. cum III car.

40 *Winepol*, 194ᵇ. II hid. et dim. et II virg. et dim. Terra est III car. In dominio II hid. et ibi I car. et adhuc dim. potest fieri. Ibi II vill. cum I bord. habent I car. et dim.

41 *Wicham*, 195ᵇ. Pro VII hid. se defend. et modo pro V hid. Terra est XII

No.

    car. In dominio III hid. et III car. et quarta pot. fieri. Ibi XI vill. cum VIII bord. habent VIII car.

42 *Wivelingham,* 191ᵇ. Pro VII hid. se defendit. Terra est VII car. In dominio IIII hid. et ibi II car. Ibi XII vill. cum V car.

43 *Wilbertone,* 192ᵃ. Ibi V hidæ. Terra est VII car. In dominio III hid. et I virg. et ibi III car. Ibi IIII sochi et IX vill. cum IIII car. Ibi VIIII cot. et VII servi.

    The same. Inquisitio Eliensis, p. 506 (Public Records Print) : Wilbertona pro V hid. se defendit. VI car. ibi est terra IIII car. et III hid. et una virg. in dominio IIII car. hom. IX vill. quisque X acr. et IIII alii vill. de una virgata.

44 *Teversham,* 201ᵇ. III hid. et dim. Terra est IIII car. et dim. In dominio II hidæ et ibi sunt II car. Ibi V vill. cum XVII bord. hab. II car. et dim.

A Domesday Geldable Hide (or carucate) appears to be 120 acres of land
Anglicus numerus was always, and the idle shift

D. Bk.	MS. (see ante)	Name	Hides in Domesday			Area of Tenants' Land			Tenants' Terræ	
			No.	Lord's	Tenant	Infr. hid.	Extr. hid.	Total	No. in D. Bk.	Area of each
Folio		CAMBS.			(Of 120)					
190ᵇ	LE	Belesham .	9	5	4	480	480	960	12	80
192ᵇ	RC	Burwell .	10 (1 +1 v)	*3 h +*40ª	*6⅔	800	400 +240	1440	12	120
194ª	HR	Abintone .	5	2½	2½	300	—	300	5	60
200ª	HR	Barton .	3½	3	½	60	30	90	3	30
194ª	HR	Badburgeham	*2½ +24ª	*½ +24ª	*2	240	48	288	3	96
	HR	Barrenton .	1⅔	1	⅔	80	80	160	2	80
		Pre D. Bk.	—	—	*⅔	80	16 +96	192	2	96
193ª		3 course .	2	1	1	120	8 +64	192	2	69
200ᵇ	HR	Brune . .	13	5	4+4	960	—	960	10 1	90 60
202ª	HR	Carlton .	3	1½	1½	180	180	360	6	60
189ᵇ	HR	Chingeston .	1+3 v	1	¾	90	—	90	1	90
191ᵇ	HR	Cottenham .	10	6	4	480	—	480	6	80
202ª	HR	Crochestune.	6	3	3	360	—	360	6	60
189ᵇ	HR	Cumbertone.	2½	1½	1	120	—	120	2	60
191ᵇ	LE	Dodinton .	*5	2½	2½	300	—	300	5	60
192ª	LE	Ely . .	*10	*5	*5	600	120 +360	1,080	2 12	108 72 }
192ᵇ	RC *273 HR 482	Ellesworth .	*9+1v +5ª	4	5+1v +5ª	635	315	945	15 3	45 90
189ᵇ	HR	Fordham .	5½	4	1⅓	180	—	180	4	45
191ª	LE	Escelforde .	9 (1 +24ª)	*5	*4	480	96	576	8	72
193ª	HR	Foxetune .	*5 +*40ª	*1 +*40ª	*4	480	96	576	6	96
196ª	HR	Grantesete .	2+3v	2	3v	60	30	90	3	30

taxed, and therefore called 'infra hidam.' The surplusage caused by the was sometimes, untaxed, and therefore 'extra hidam.'

No. in each terra	Total No.	Size of ditto	Size in MS.	No. in one hide	Infr. hid.	Extr. hid.	No. (see ante)	—
	Tenants' Virgates							
4	48	20	20	6	20	20	1	There are just 48 virgates in MS. L.E. See *post*, 'Villanus' and 'Servus'
3¼	40	36	*30	4	30	6	2	* By the greater hundred. The real virgate was 24, but the manor was in a 3 course, and it had become 36, so the 42½ villains of D. Bk. means 42 (1½ virgates). The two Churches had two virgates. See H. R. p. 499, i.e. *40
			=	6	20	4		
						+ 12		
2	10	30	30	4	30	—	3	
1	3	30	30	6	20	10	4	
4	12	24	24	5	24	—	5	* By greater hundred, but the sixth 'extra hidam.' 4 car. of 96. Gone into a 3 course. 18 villani of 16
			=	6	20	4	—	
2	4	40	40	6	20	20	6	* By greater hundred
2	4	48	*40	6	20	28	—	
2	6	32	*40	3¾	32	16	—	
			or	6	20	12		
3 } 2 }	32	30	30	4	30	—	7	
2	12	30	30	4	30	30	9	
3	3	30	30	4	30	—	10	Inq. C. C. ¾ virg.=20
4	24	20	20	6	20	—	11	H. R. p. 409, 2 hides=240
2	12	30	30	4	30	—	12	
2	4	30	30	4	30	—	13	
·5	25	12	12	5	12 + 12	—	14	The acreage no doubt by the greater hundred as the virgate is 12ª, and the sochmanni had the surplus 'ex hi.'
3 } 2 }	30	36	36	6	20	16	15	* Greater hundred. The 'quisque de xv acris' of taxed land are really 'quisque de xviii acris' in acreage : added to this there are 360 of idle shift 'extra hidam' in acreage. Note that 30 by the greater hundred is 36
1½ } 3 }	31½ + 5ª	30	30	6	20	10	17	* Compare H.R. and R.C. Tenants 7½ hides of 90 + 2½ of 108
1½	6	30	30	4	30	—	18	
2	16	36	36	4	30	6	19	* By greater hundred 24 of 24
2⅝	16	36	36	4	30	6	20	* Anglico numero. 8 car. of 96
1⅓	4½	20	30	6	20	10	21	3 (1½ virg.)= '4½ villains,' and note 3½ vill. 'habent' 3 car. See *post*, 'Villanus'

D. Bk.	MS. (see ante)	Name	Hides in Domesday			Area of Tenants' Land			Tenants' Terræ	
			No.	Lord's	Tenant	Infr. hid.	Extr. hid.	Total	No. in D. Bk.	Area of each
Folio		CAMBS. (*continued*)			(Of 120)					
191ᵇ	LE	Gratadene .	*5	*2½	*2½	360	—	360	6 or 5	60 or 72
192ᵃ	LE	Heilla .	2	I + v + 10ᵃ	½ + 20ᵃ	80	80	160	2	80
196ᵃ	HR	Hecteslai .	*3 432	1⅓ 180 +60	1½	180	12	192	6	32
191ᵇ	LE	Hardwick .	3 + v + 12ᵃ	1½ + 12ᵃ	1½ + Iv	200	200	400	2 2	120 80
197ᵃ	HR	Haslingfield	5	2	3	360	—	360	4	90
191ᵃ	EM	Havochestun	*8⅓	*5	*3½	420	84	504	2 6	36 72
192ᵃ	LE	Lindona	4	2½	1½	180	180	360	2	90 +90
191ᵇ	LE	Littleport	2⅓	I	*1½	180	72 + 180	432	4	108
						180	180	360	4	90
191ᵇ	EM	Melbourne	2 + Iv	I + Iv	I	120	120	240	3	80
191ᵃ		Pampisford	2 + 3½ v	I + 1½v	1½	180	180	360	4	90
195ᵃ	HR	Papworth	5	2½	2½	300	—	300	5	60
190ᵇ	EM	Swaffham	3	I + 3 v	I + I v	150	—	150	2 1	60 30
192ᵇ	HR	Stow	2	I	I	120	—	120	3	40
191ᵇ	LE	Stretham	5	3	2	240	240	480	5	66
202ᵃ	HR	Trumpington	2	I	I	120	—	120	2	60
191ᵃ	LE	Triplow	*5½	3	2½	300	—	300	5	90
193ᵇ	HR	Warateuorde	2 + ⅔ v	I + ⅔ v	I	120	—	120	2	60
190ᵇ	EM	Waratinge	4½	3	*1½	180	36	216	3	72
194ᵇ	HR	Winepol	*2 + *2⅓v	*2	*2⅓v	100	20	120	1⅓	80
195ᵇ		Wicham	5	3	2	240	240	480	8	60
191ᵇ	HR	Wivelingham	7	4	3	360	—	360	4 1	60 120
192ᵃ	LE	Wilburton	*5	3(I + I v) 360 + 72	*2	240	144 + 48	432	4	108
201ᵇ	HR	Teversham	3⅓	2	1½	180	—	180	2½	72

Hide, &c.—cont.

Tenants' Virgates							No. (see ante)	—
No. in each terra	Total No.	Size of ditto	Size in MS.	No. in one hide	Infr. hid.	Extr. hid.		
2	12 or 10	30 or 36	35	4	30	6	22	• Anglico numero. Note a virg. of 30 by the greater hundred is 36 by the less, and 5 of 72 = 360 and 10 of 36 = 12 of 30; and on referring to H.R. p. 535, and MS. E.L. it appears the land was wara, so there would be twice the amount of land, and villains 24 instead of 12
4	8	20	20	12	10	10	23	
1	6	32	32	4	30	2	24	• Anglico numero. 3 course 9 car. of 48. Tenant had 12ª and the Lord had 60 'ex. hi.'
6 } 4	20	20	20	12	10	10	25	
3	12	30	30	4	30	—	26	
1½ } 3	21	24	24	6	20	4	27	• Anglico numero.
9	18	20	20	6	20	20	28	
4½	18	24	24	6	20	28	29	• Anglico numero, and common hundred.
4½	18	20						
2	6	40	40	6	20	20	30	
3	12	30	—	4	30	30	31	
2	10	30	30	4	30	—	32	
2 } 1	5	30	30	4	20	—	33	This was probably wara, and double the quantity of land and villains. See H.R. 484.
2	6	20	20	6	20	—	34	Probably by the greater hundred, like Barrenton.
4	20	24	24	12	10	14	35	
2	4	30	30	4	30	—	36	
2	10	30	30	4	30	—	37	• Sic, Hamilton's Inq. Com. Cant. p. 106. There are just 24 half virg. in H. R. 543,=12 virg.
2	4	30	30	4	30	—	38	
4	12	18	18	8	15	3	39	• Anglico numero. 6 villains of 36=12 of 18.
2	3	40	40	3	40	—	40	• Anglico numero, i.e. 48, the sixth part being 'extra hidam.'
1½	12	40	—	6	20	20	41	
2 } 4	12	30	30	4	30	—	42	
4½	18	24	24	9	13½	10⅔	43	See the details of this Manor post. • Anglico numero.
3	7½	24	24	5	24	—	44	

No. GLOUCESTERSHIRE.

55 *Aldersorde*, 165ᵇ. Ibi XI hidæ. In dominio sunt III car. et XXI vill. et
v. bord. et II francig. cum XV car.

56 *Bocheland*, 165ᵇ. Ibi X hid. In dominio sunt III car. et XXII vill. et
VI bord. cum XII car.

57 *Frowecestere*, 165ᵇ. Ibi V hidæ. In dominio sunt IIII car. et VIII vill. et
VII bord. cum VII car.

58 *Boxewelle*, 165ᵇ. Ibi V hidæ. In dominio sunt II car. et XII vill. et
I Radchenista habentes XII car.

*A Domesday Geldable Hide (or carucate) appears to be 120 acres of land
the Anglicus numerus was always, and the idle shift*

D. Bk.	MS. (see ante)	Name	Hides in Domesday			Area of Tenants' Land			Tenants' Terræ	
			No.	Lord's	Tenant	Infr. hid.	Extr. hid.	Total	No. in D. Bk.	Area of each
		GLOUCESTER-SHIRE								
165ᵇ	PG	Aldersorde .	*11	*3	*8	960	192	1,152	13	72
									2	108
165ᵇ	PG	Bocheland .	*10	*4 3 car	*6	720	144	864	12	72
165ᵇ	PG	Frowcester .	*5	*3½	*1½	200	40	240	1	24
									6	36
165ᵇ	PG	Boxwell .	*5 720	*1 144	*4	480	96	576	12	48
165ᵇ	PG	Hamme .	*7 1,008	*3½ 3 car	*3½	420	84	504	7	72
165ᵇ	PG	Duntesburn.	5	3	2	240		240	5	48
165ᵇ	PG	Ledene .	4	2	2	240	240	480	8	60
165ᵇ	PG	Amenel .	*2		*2	240	48	288	3	96
165ᵇ	PG	Culne .	4	*2	*2	240	48 + 288	576	12	48

No. GLOUCESTERSHIRE—*cont.*

59 *Hamme,* 165ᵇ. Ibi vii hid. In dominio sunt III car. et XII vill. et
      IIII bord. cum VII car.

60 *Duntesburn,* 165ᵇ. v hid. In dominio III car. et VIII vill. cum v car.
      Ibi XVI servi.

61 *Ledene,* 165ᵇ. Ibi IIII hidæ. In dominio II car. et VIII vill. cum VIII car.

62 *Omenie,* 165ᵇ. II hid. Ibi II car. et v vill. cum III car.

63 *Culne,* 165ᵇ. Ibi IIII hidæ. In dominio sunt III car. et XI vill. et
      VII bord. cum XII car.

taxed, and therefore called 'infra hidam.' The surplusage caused by
was sometimes, untaxed, and therefore 'extra hidam.'

Tenants' Virgates							No. ante	—
No. in each terra	Total No.	Size of ditto	Size in MS.	No. in one hide	Infr. hid.	Ext. hid.		
1½ ⎫ 2¼ ⎬	24	48	48	3	40	8	55	All the Gloucester virgates seem to be Anglico numero
2	24	36	36	4	30	6	56	• By greater hundred 3 car. of 192 = 576 = 480 by greater hundred
1 ⎫ 1¼ ⎬ 1	10	24	24	6	20	4	57	• Anglico numero. Lord's car. 4 of 120
1	12	48	48	3	40	8	58	* By greater hundred. The lord had 2 car. of 72
1½	10½	48	48	3	40	8	59	• By greater hundred. Lord 3 car. of 168. Villains held ½ virg.
2	10	24	24	5	24		60	
1	8	60	*50	4	30	30	61	• By the greater hundred
2	6	48	48	3	40	8	62	* Anglico numero
1	12	48	48	5	24	24	63	• Anglico numero, 3 Lord's car. of 192

DORSETSHIRE.

No.

158 *Wintreburne.* Geldb. pro II hid. et una virg. terræ. Terra est I car. et dimid. In dominio I car. cum I servo et II villani et II bord. cum dimid car.

 Idem. Exon D. p. 50. Redd. gildum pro II hid. et una virgata; has poss. arare I car. et dim. Inde habet Uxor hujus II hid. dim. virg. minus et I car. in dominio et villani I virg. et dim. et dim. car.

159 *Pomacanola*, 83ᵇ. Geldb. pro V hid. Terra est IIII car. In dominio sunt II car. et IIII servi et IIII villani et V bord. cum II car.

 Idem. · Exon D. 51. Reddit gildum pro V hidis has poss. arare IIII car. Inde habet W. III hidas et II car. in dominio et villani II hidas et II car.

160 *Tarente*, 83ᵇ. Geldb. pro V hid. Terra est III car. In dominio est I car. et IIII servi et II villani et IIII bord. cum I car.

 Idem. Exon D. p. 52. Redd. gildum pro V hid.; has poss. arare III car. Ibi habet R. IIII hid. et dimidia in dominio et I caruca et villani dimid. hid. et I car.

161 *Retpole*, 77ᵇ. Geldb. pro III hid. Terra est III car.; de ea sunt in dominio medietas et ibi I car. cum I servo et I villo et V bord. habent II car.

162 *Eltone*, 78ᵇ. Geldb. pro XVIII hid. Terra est X car. De ea sunt in dominio IX hid. et una virg. terræ et ibi III car. et VIII servi et XVII vill. et XII bord. cum VII car.

 Idem. Exon D. 37. Reddidit gildum pro XVIII hidis; has poss. arare X car. De his habet Abbas IX hidis et I virg. et III car. in dominio et villani IX hidas I virg. minus et VII car.

163 *Portesan*, 70ᵇ. Geldb. pro XII hid. Terra est IX car. De ea sunt in dominio V hidæ. terræ et ibi IIII car. et XII servi et XII villani et X bord. cum V car.

 Idem. Exon D. p. 37. Reddidit gildum pro XII hidis; has poss. arare IX car. Inde habet Abbas V hidas et IIII car. in dominio et villani VII hidas et V car. et in ista mansione pertinet I virg. terræ quæ die obitus regis Edwardi erat in victu monachorum et Hugo filius Gripponis injuste sibi accepit et adhuc uxor sua eam vi detinet.

164 *Osmantone*, 78ᵃ. Geldb. pro X hidis. Terra est X car. De ea sunt in dominio IIII hidæ et ibi II car. et III servi et XVI villani et VII bord. cum VI car.

165 *Middletone*, 78ᵃ. Geldb. pro XXIIII hid. Terra est XVIII car. De ea sunt in dominio X hidæ una virg. minus et ibi II car. et VI servi et XXVII villani et XX bord. cum XIII car.

166 *Liscome*, 78ᵃ. Geldb. pro III hidis. Terra est II car. De ea sunt in dominio II hidæ et ibi I car. et II servi et III villani et V bord. cum I car.

167 *Pidere*, 82ᵇ. Geldb. pro X hidis. Terra est VI car. In dominio sunt III car. et II servi et XII villani et XII bord. cum III car.

 Idem. Exon D. p. 46. Gueldabat pro X hid. et potest arari per VI car. et habet VI hid. et I virgam in dominio et habet III car. et villani ejus habent III hid. et III virgas et habent III car. et sunt in illa terra XII villani et XII bordarii·

DORSETSHIRE—*cont.*

No.

168 *Poleham,* 81ᵇ. Geldb. pro X hidis. Terra est VIII car. In dominio sunt III car. et VI servi et XIIII vill. et XXV bord. cum VII car.

Idem. Exon D. 42. Reddidit Gildum pro X hidis; has poss. arare VIII car. Inde habet W. IIII hidas et I virg. et VI agros et III car. in dominio et villani V hidas et dimidiam et IIII agros et VII car.

HAMPSHIRE.

169 *Riple,* 50ᵇ. Geld. pro V hid. Modo pro II hid. Terra est II car. In dominio est una et VIII bord. et IIII serv. cum II car. De isto manerio III hidæ in foresta regis et totum nemus.

170 *Lamere,* 43ᵃ. Tunc et modo se defend. pro III hid. Terra est V car. In dominio est una et VI villani et III bord. cum III car.

171 *Hentune,* 51ᵃ. Tunc pro una hida modo pro III virg. una est in foresta. Terra est III car. ibi VI vill. habent II car.

172 *Depedene,* 51ᵇ. Tunc se defendit pro V hid. modo pro II hid. et non geld. nisi pro una quia III hidæ sunt in foresta. Terra est IIII car. Ibi sunt IIII villani et XV bord. cum V car.

173 *Acangre,* 49ᵇ. Se defendit pro una hida et una virg. Terra est IIII car. In dominio sunt II et VIII villani et VI bord. cum III car. et II servi.

A Domesday Geldable hide (or carucate) appears to be 120 *acres of land*
the Anglicus numerus was always, and the idle shift

D.Bk.	Exon. D.	Name	Hides in Domesday			Area of Tenants' Land			Tenants' Terræ	
			No.	Lord's	Tenant	Infr. hid.	Extr. hid.	Total	No. in D. Bk.	Area of each
Folio		DORSETSHIRE			(Of 120)					
83ᵇ	50	Wintreburne	*1¼ 180 + 36	*1⅛ 162	*⅜	45	9	54	½	108
83ᵇ	51	Pomacanola	4 480	2⅓ 28	1⅔	192	—	192	2	96
83ᵇ	52	Tarente .	3 360	2⁷⁄₁₆ 324	⁹⁄₁₆	36	—	36	½	72
77ᵇ	34	Retpole .	3 360	1½ 180	1½	180	—	180	2	90
78ᵇ	37	Eltone .	*10 1200 + 240 ex hi	*5 + 1 v 640 + 128 ex hi	*5 − 1 v	560	112	672	7	96
78ᵇ	37	Portesan .	*9 1080 + 216	*3¾ 450 + 90	*5¼	630	126	756	7	108
78ᵃ	39	Osmantone .	10	4	6	720	—	720	6	120
78ᵃ	40	Miteltone .	*15 1800 + 360 ex hi	2 240 + 360 ex hi	13	1560	—	1560	14 + 1 v i.e. 13	108 120
78ᵃ	40	Liscome .	2	1⅓	⅔	80	—	80	1	80

taxed, and therefore called 'infra hidam.' The surplusage caused by was sometimes, untaxed, and therefore 'extra hidam.'

Tenants' Virgates						No. ante	
No. in each Terra	Total No.	Size of ditto	No. in one hide	Infr. hid.	Extr. hid.		
							The returns in this county are peculiar. In most of the other counties the standard geldable hide, or carucate, is placed first, and then the number of terræ therein is stated: for instance, in Rutland, fol. 293ᵇ, we have the entry, 'in Alfnodeston Wapentake sunt 11 Hundrez. In unoquoque XII carucatæ ad geldum et in unoquoque XXIIII carucæ.' But in Dorset, Middlesex, Yorkshire, Wiltshire, Sussex, &c., the returns are the reverse of this: the 'terra ad carucam' appears to be the standard geldated area of 120ᵃ: and the word 'hida' in Dorsetshire, &c., and the term 'car. terræ ad geldum' in Yorkshire, are used to express the area of one plough-land in the manor, so that the terms 'terra est car.' in Dorset, and 'car. potest ibi ere' in Yorkshire, imply what the geldable hide implies in other counties, viz. 120ᵃ of taxed land. Exon. Domesday should be read in connexion with the following cases.
3	1½	36	4	30	6	158	• Anglico numero : 1½ car. of 144 (120+24)=216 : virgates four in 144 of 36. The geldable land 2 hides of 90+36 'ex. hi.' (being the sixth taken off by the Commissioners) 108 = 90 Anglico numero.
2	4	48	2½	48	—	159	The Lord 2 car. of 144. Five average hides or car. of 96
3	1½	24	5	24	—	160	Five average hides or car. of 72
3	6	30	4	30	—	161	Three average hides or car. of 120
2	14	48	3	40	8	162	• Anglico numero : 12 hides reduced to 10. Two 'extra hidam' 18 (15 Anglico numero) of 80 = 1440, so 15 of 96 (80 Anglico numero) = 1,440, 40 Anglico numero = 48
3	21	36	4	30	6	163	Twelve average hides or car. of 90 Anglico numero, i.e. 108 = 1,296 • Anglico numero
4	24	30	4	30	—	164	
2¼	32½	48	2½	48	—	165	• Anglico numero = 18 of 120, of which 15 only are taxed, the Lord having 2 and the tenants 13. There were twenty-four hides or car. of 90, i.e. 90×108. The Lord had 240 (+ 360 'extra hidam'). His holding was 600, i.e. 10 × (108 minus 1 v.). The tenants had 14 hides of 108 (90 Anglico numero) + 1 virgate = 1560 or 13 car. By this arrangement the Lord had the advantage of all the land 'extra hidam'
4	52	30	4	30		
4	4	20	6	20	—	166	Three car. or hides of 80 = 240 = 2 hides or car. of 120

A Domesday Geldable

D. Bk.	Exon. D.	Name	Hides in Domesday			Area of Tenants' Land			Tenants' Terræ	
			No.	Lord's	Tenant	Infr. hid.	Extr. hid.	Total	No. in D. Bk.	Area of each
Folio		**DORSETSHIRE** *(continued)*					.			
82ᵇ	46	Pidere	*6 720 + 144	*3¾ 450 + 90	*2¼	270	54	324	3	108
		Pidere geldable	6 720	3¾ 450	(Of 120) 2¼	270		270	3	90
81ᵇ	42	Poleham	8	3⅖	4⅖	528		528	5½	96
		Most likely	*8 960 + 192 ex hi	*3 432	5*	600	120	720	6 1	96 144

YORKSHIRE.

No.

333 *Estorp*, 307ᵇ. Ad hoc Manerium pertinet soca hæc. In Doncastre II car. In Wormesford I car. In Ballebi II car. et Geureshale II car. Scitelesuuorde IIII car. Oustrefeld II car. Alcheslei II car. Simul. xv caruc. ad geld. ubi possunt ere XVIII carucæ. Modo in dominio I car. et XXIIII vill. et XXVII bord. et XL sochi. Hi habent XXVII car.

334 *Rodreham*, 307ᵇ. Habet Acun I maner. de v carucat. ad geldum ubi poss. ere III car. Nigel habet in dominio I car. et VIII vill. et III bord. habentes II car. et dimid.

hide, &c.—cont.

Tenants' Virgates						No. ante	
No. in each Terra	Total No.	Size of ditto	No. in one hide	Infr. hid.	Extr. hid.		—
3	9	36	4	30	6	167	* Anglico numero. There were (10 Anglico numero, i.e.) 12 hides or car. of 72. The 144 acres extra hidam were very likely entirely in the Lord's car., who had 3 car. of 180 or 6 (60 + 30). If 144 is taken from 540 it leaves 396, to which if the tenants' 324 is added, it makes 720, or 6 hides of geldable land. The virgate of the geldable hide was 30, the areal virgate 36. The 396ᵃ is six hid. or car. of 60 + an areal virgate of 36. The tenants' 324 is 3 hid. or car. of (60 Anglico numero) 72 = 216 + 3 areal virgates of 36.
3	9	30	4	30			This is another solution, taking the geldable land only, and taking the virgate to be the virgate of the average car. and not of the geldable hide, i.e. 18ᵃ. There were 720 acres in 10 hides or car., ∴ each car. was 72 acres. The Lord's 6 hidæ + 1 virg. = 6 × 72 + 18 = 450. The villains' 3 hidæ + 3 virg. = 3 × 72 + 54 = 270. It will be seen that 450, 270, 90, 30, Anglico numero = 540, 324, 108, 36.
4	22	24	5	24		168	There were 8 geldable car. of 120 contained in 10 hides or car. of 96. The tenants held originally 5½ car. or hides of 96 = 528.
							The Lord originally had 4 of 96 = 384 + 36 (1 virg. of his car. of 144) + 12ᵃ, i.e. (10ᵃ Anglico numero) total 432, or 3 car. of 144 (120, Anglico numero), but it appears from Exon. D. that the tenants had ½ of this 12ᵃ. It will be observed that the virg. of 36ᵃ + 12 makes the ½ hide or car. of 96.
							This is the case on which Kemble in his 'Saxons in England,' App. B. 490, founds his general assertion that a hide was 40. But he wrongly takes for granted that the virgate of the Lord's car. is the same as the virgate of the tenants' car.—a terra of 80 and ¼ terra 40, Anglico numero = 96 and 48 respectively.
4}6}	30	24		20	4		Most likely ᵈ Anglico numero, and 10 car. Anglico numero = 12 car. of 96. The surplusage caused in the tenants' land by the A. N., viz. 192ᵃ, gives 48ᵃ to the 5½ car. or hides of 96, making 6 of them, and gives a seventh plough of 144.

YORKSHIRE—*cont.*

No.

335 *Chercam*, 307ᵃ. VIII carucat. ad geld. et IIII car. possunt ere. In dominio II car. et XII vill. cum IIII car.

336 *Delton*, 304ᵃ. Ad geld. XII carucate et VI car. poss. ere. Nunc habet in dom. I car. et XII vill. cum VII car.

337 *Catrice*, 310ᵇ. Ad geld. X carucate et X car. poss. ere. In dominio VI carucat. et XIIII vill. et VI bord. cum IV car.

338 *Finegala*, 312ᵃ. Ad geld. VI caruc. et IV car. poss. ere. Ibi XIII villani habentes VII car.

YORKSHIRE—*cont.*

No.

339 *Chipesch*, 315ª.   XVIII carucatas ad geldum et x carucæ possunt ibi ere.

340 *Ettone*, 304ª. Ad geldum VIII carucatæ et IIII car. poss. ere. Ibi VIII villani habent v car.

341 *Scanhalla*, 315ᵇ. IIII car. terræ ad geld. Terra III car. In dominio I car. et x vill. et v. bord. habentes III car.

342 *Fareburne*, 315ᵇ. II car. terr. et dimid. ad geld. et II car. poss. ibi ere. In dominio I car. et IIII vill. et III bord. cum I car.

A Domesday Geldable Hide (or carucate) appears to be 120 *acres of land*
Anglicus numerus was always, and the idle shift

D. Bk.	Name	Hides in Domesday			Area of Tenants' Land			Tenants' Terræ	
		No.	Lord's	Tenant	Infr. hid.	Extr. hid.	Total	No. in D. Bk.	Area of each
	YORKSHIRE								
307ᵇ	Estorp Soca .	*15	*1½	13½	1620	324	1944	27	72
307ᵇ	Rodreham . .	3	1½	1½	180	—	180	2½	72
307ª	Chercam . .	4	2	2	240	—	240	4	60
304ª	Delton . .	6	2½	3½	420	—	420	7	60
310ᵇ	Catrice . .	10	6	4	480	—	480	4	120
312ᵇ	Finegala . .	4	—	4	480	—	480	6	80
						or	480	5	80
								2	40
315ª	Chipesch . .	*10	—	*10	1200	240	1440	3 } 15 }	80 80
304ª	Ettone . .	4	—	4	480	—	480	3	120
								2	60
315ᵇ	Scanhalla . .	3	¾	2¼	270	—	270	3	90
315ᵇ	Fareburne . .	2	1¼	¾	96	—	96	1	96
315ᵇ	Nortone . .	*3	*1	*2	240	48	288	6	48
313ª	Cliftun . .	*8	—	*8	960	480 + 576	1728	18	96
	geldable area .	8	—	8	960	480	1140	15	96

YORKSHIRE—*cont.*

No.

343 *Nortone,* 315ᵇ. v car. terræ ad geld. ubi poss. ere III car. In dominio
II car. et x vill. et xv bord. cum VI car.

344 *Cliftun,* 313ᵃ. In Cliftun adjacet soca hæc. Fuleforde I car. et III bov.
Aseri IIII car. Chetelsthorp IIII car. Languelt I car. et dim. Chelchefeld
II car. et II bov. Morebi I car. Distone IIII car. Hæ III fuere maneria
tamen sunt in soca de Cliftun. Simul ad geld. xv carucatæ I bov. minus
et VIII car. possunt ere.

*taxed, and therefore called 'infra hidam.' The surplusage caused by the
was sometimes, untaxed, and therefore 'extra hidam.'*

Tenants' Virgates						No. ante	—
No. in each terra	Total No.	Size of ditto	No. in one hide	Infr. hid.	Extr. hid.		
3	71	24	6	20	4	333	See remarks on Dorset as to the method of return in that country and this * Anglico numero=18. The Lord's car. 216ᵃ, i.e 3 car. of 72, or 9 virgates. 30 car. altogether
3	8	24	5	24	—	334	The Lord's 1 car.=2½ car. of 72, so there would be 5 car. of 72
3	12	40	6	20	—	335	The Lord had 2 of 120
2	14	30	4	30	—	336	
3	12	40	4	30	—	337	
2	12	40	3	20 +20	—	338	
2 } 1 }	12	40	6	20 +20	—	—	
4	12	20	6	—	20	339	* Anglico numero
4	60	20	6	20	—	—	
3 } 1½ }	11	40	3	40	—	340	8 car. of 60
3	9	30	4	30	—	341	Lord's car. 90. 4 of 90=360=3 × 120
4	4	24	5	24	—	342	Lord's car. 144, i.e. 1⅕ of 96
2	12	24	6	20	4	343	* Anglico numero. 6 (i.e. 5, Anglico numero) of 72=432. Lord 2 car. of 72
2	36	48	3¾	32	16	344	* Anglico numero : actual area. A bovate is added to each in order to simplify matters. The areal bovate was 8, the geldable bovate 6⅘, i.e. 18 of the former in the 120 (Anglico numero, i.e. 144), and 18 of the latter in the geldable hide of 120. The geldable portion of the virgate was 32, the areal 48, as at Broctune, ante.
2	30	48	—	—	—	—	

V. THE DOMESDAY GELDABLE 'HIDA' OR 'CARUCATA.'

Supposing, then, that this unit of assessment was one and the same all over England, for the purposes of the taxation of land producing profit, it could not include any other land than *terra lucrabilis*, i.e. arable land, *pratum*, pieces of *silva* and *pastura* appropriated from the waste and therefore taxed.

This appears from the fact that manors in D. Bk. 'defend themselves' for so many hides, plus in some cases small numbers of acres, a mode of expression which certainly does not apply to large extents of forests and wastes. Eyton and others must, I think, be egregiously wrong when they include a whole county in the hidation of it, and go so far as to talk of hides of many hundreds, or even thousands, of acres. They seem to have been perfectly ignorant of the old pound-paying units of silver or food, and to have deemed it necessary to include the whole of the land in the several counties in the geldation contained in D. Bk., whereas we have distinct evidence from D. Bk. itself (in the county of Huntingdon, for instance) that a considerable portion (of arable land even) was *extra hidam* under the circumstances hereafter detailed. In Devonshire, too, and Cornwall a very large proportion of the arable was *extra hidam*, and not (as has been suggested) included in hides of an abnormal size. It is also to be remarked that the entirety of the lands of manors is given in some manors in Yorkshire, and it is clear that generally only the *terræ* are geldated. On the other hand, appropriated pieces of *wara* or pasture land were certainly taxed, which is sufficiently plain in the entries in regard to Cottenham in Cambridgeshire, and other places in the Hundred Rolls and D. Bk. Also in D. Bk. itself

(Tom. I. fol. 93ᵃ, Somerset) at Hamitone of 21 hides Baldwinus is said to have 1 hide *in communi pastura.*

Cottenham (H.R. vol. ii. p. 409, and D. Bk. 191ᵇ, 192ᵇ, 201ᵇ) was hidated at the time of the Hundred Rolls and D. Bk. at twenty-seven hides. These hides are identified in the Hundred Rolls, and separated into hides of arable land and hides of pasture, &c. Thus the eleven hides of the Abbot and Convent of Croyland are described as *ut in terris pratis pasturis et mariscis* ; and the Hundred Rolls go on to say, *unde dictus Abbas et Conventus tenent in dominio de dictis undecim hidis duas hidas arabiles, et quinque hidas in pratis, pasturis et mariscis pertinentibus ad predictam villam.*

These hides or pound-paying units of pasture were, no doubt, Cottenham Common, but were very different from the fens and marshes which adjoined it.

All the uncertainty with regard to this matter of size of D. Bk. hides has arisen from the fact that (from the time of Agard down to the present time) antiquaries, having stumbled upon allusions in old documents to *virgates* of sizes varying in different places, have multiplied such virgate by four, and then called the resulting number of acres a Domesday hide, in such county or place; but, apart from this, they have never a reason for what, in the absence of any, must be nothing more than an arbitrary division of land.

Moreover, few of them in former times (as far as I know) had the same opportunity of closely comparing the statements in D. Bk. with such old documents and with Court Rolls of the same time as we have now.

I think, however, it can be, and that I have, proved, that the Domesday pound-paying unit—i.e. the geldable hide, *terra ad carucam,* or *carucata*—had a fixed and certain meaning, and that the perfectly true statements as to the varying size of the virgates of the manor (answering as they do to the ancient divisions of the pound of silver) are the very means

by which the unvarying size of the geldable hide, &c., in D. Bk. may be tested and confirmed.

An acre of arable land, however, being, as it were, in two parts—the one being *ad seminandum,* and the other *ad warec-tandum*—it is most important, for purposes of calculation, to observe that in very many manors, particularly in the county of Kent, this land *warectandum* (in other words, the idle shift) was *extra hidam,* not geldated, and therefore unnoticed in D. Bk. Under what circumstances, and why this should have been the case, is to be found in the fact that in those manors the fallow lay in common, *jacet in communi*; and an acre of such land (with sown land geldated and the fallow not) is in the Ely MSS., in some manors, called half an acre of *wara,* which word, I submit, may be the source from which the term *ad warectum* is derived. This state of things in the Domesday of St. Paul seems to be referred to by the use of the expression *una hida in solanda*—i.e. the geldated hide of 120 acres, plus the fallow. The non-liability to taxation of fallow land when lying in common appears in very many MSS. For instance, in Cottonian MSS., Faust B. viii. f. 206, ' Et ibidem I carucata terræ continens in se L acras terræ, unde duo partes possunt quolibet anno seminari, et valet acra quando seminata II denarios. Et tertia pars nihil valet sed jacet ad warectam et in communi'; and in No. 6,165 of the Ad. MSS. at the British Museum, containing an extent of the Manor of Littleberri, in Essex, taken at the instance of the Crown, where is to be found this entry: ' Et sunt ibidem CCXL acræ terræ arabilis quæ valet per annum XLˢ pr. per ac. IIᵈ quando seiantur, et quando non seiantur, valet per annum XXˢ pr. per ac. Iᵈ. Item sunt ibidem CCXL acræ terræ arabilis, quarum quælibet acra valet IIᵈ, quando seiantur, et quando non seiantur, nihil valet, quia jacet in communi.'

The MS. is speaking of the lord's land in the open fields ;

therefore, if the lord's land therein, when not sown, lay ' in communi,' he would not be taxed on his fallow ; on the other hand, if the tenants had no right of common over the fallow, but it lay ' in separali' for the lord's fold, then their fallow would be ' extra hidam' as far as they were concerned.

In estimating the quantities under plough, that fact has to be borne in mind, and calculations made accordingly. So, too, in regard to pasture land where it lay in common, as was generally the case, it was untaxed ; thus in vol. ii. of the Hundred Rolls, p. 451, at Rampton we read 'dicimus quod dominus Robertus de Insula habet in Rampton in dominico et in homagio quinque hidæ et dimidium et XXIIII acræ ut in terra pratis pasturis excepto marisco qui est communis,' and therefore not taxed.

The Domesday geldable hide of 120 acres was the kernel of Fleta's carucate, which seems to have been composed of the sown land, linked with its twin brother, the land *ad warectandum*, and if lying in common when fallow, then *extra hydam*. This sum total of land *ad geldum*, and land *extra hydam*, appears to have been in two-shift manors, 240 or 288 acres, and, in three-course manors, 180 or 216 acres. The carucate of 120 acres *ad seminandum* + 120 or + 80 acres *ad warectandum* was the Kentish *solin* or *sulung*; which was nothing more than a carucate consisting of the geldable hide with its idle shift very often *extra hydam*.

As an authority for this there is the statement quoted in the second folio of D. Bk. of Kent: '*In communi terra sunt cccc acræ et dimid., quæ faciunt ii silinos · et dimid.*': i.e. 400 (1½) or 600 acres : also in a charter quoted in a note to the General Introduction of D. Bk. fol. xlix we read, '*Terram trium aratrorum* [or *carucarum*] *quam Cantiani Anglice dicunt* three swolinges.'

By the introduction of the three-course system a greater amount of land was obtained *ad seminandum* and therefore

ad geldum at the expense of the land *ad warectandum* : and though, apparently, the area of the real Domesday hide, for taxational purposes, never varied, as has been supposed, yet by the introduction of the three-course system (supposing the fallow to be *extra hidam*), there might become, in the same area, more geldable hides, and consequently more carucates : the latter, however, being smaller than before. A greater number of geldable hides also, of course, would arise out of the same area, if the fallow land was hidated. The prominent part that this change of cropping had in fixing the number of Domesday hides in areas of *wara* is shewn in a table at the end of the next section of this paper, headed, ‘Anglicus Numerus.’

VI. THE ‘ANGLICUS NUMERUS,’ OR NUMBERS ‘JUX-TA ESTIMATIONEM ANGLORUM’ IN RELATION TO THE DOMESDAY GELDABLE ‘HIDA,’ ‘TERRA AD CARUCAM,’ OR ‘CARUCATA.’

In order to understand this it is needful to explain how the MSS. called the Domesday Bk. and the H. R. and the succeeding MSS. (such as the Domesday of St. Paul, the Ely MSS., and the ‘Ramsey Chartulary’) differ in character, though they agree in substance. Domesday and H. R. were MSS. dealing generally with areas of land liable to taxation ; the other MSS. deal generally with actual areas of taxable and untaxable land in possession of the lords and their men. Again, a document like the Domesday Book was a ‘Schedule’ for the purposes of ascertaining the assessment of the whole country, or the number of pound-paying units therein ; so we must naturally think of it as formed on one and the same plan of counting throughout the whole, or that at least it would have been the aim of the Norman king’s officers to form it so. The later MSS., on the other hand,

deal with the actual areas (the 'plenæ terræ') belonging to their lords, and of necessity speak of such areas according to their actual contents in the common Norman numbers of the day. The difficulty thus presented to the king's officers (or it may be to the juratores of the original returns) by this matter of counting is seen at a glance in the following tables of areas, shown both in numbers of the common counting now in use, and also in numbers of the counting expressed by the words 'Anglico numero,' or 'juxta estimationem Anglorum.' The difficulty really arose in the Anglo-Saxons taking twelve strips, while the Normans and Franks had only ten, in order to fit in with their respective pounds, so that 120 acres or pence with the Normans answered to 144 acres or pence with the Anglo-Saxons. Nor was this all: 120 acres of the Normans answered to the 128 of those places where the old Mercian division of the pound-paying unit still obtained, as I have explained in a former part of the paper. So there would be in the Anglo-Saxon pound-paying unit $\frac{1}{5}$th more area than in the Norman pound-paying unit, and in the old Mercian division $\frac{1}{15}$th more than in the Norman pound-paying unit. I have not put in a separate table for the Mercian division of the pound-paying unit; it is sufficient to say that in such cases $\frac{1}{16}$th would have to be taken off in order to reconcile the areas to the Norman standard.

Actual Areas of Acres stated in the Tables. Common Counting		The like Areas, but expressed 'Juxta estimationem Anglorum,' who therefore would not reckon 120 till they had 144.
Bovate	6	5 Bovate
,, ...	8	6⅔ ,,
,, ...	9	7½ ,,
,, ...	10	8⅓ ,,
,, ...	12	10 ,,
,, ...	15	12½ ,,
,, ...	16	13⅓ ,,
,, ...	18	15 ,,
,, ...	20	16⅔ ,,
Bovate of wara or Common Virgate	24	Common Virgate or Bovate of 20 wara
,, ,, ,,	30	25 ,, ,, ,,
,, ,, ,,	32	26⅔ ,, ,, ,,
,, ,, ,,	36	30 ,, ,, ,,
Virgate of wara or terra . .	48	40 Terra or Virgate of wara
,, ,, . .	54	45 ,, ,,
,, ,, . .	60	50 ,, ,,
,, ,, . .	72	60 ,, ,,
Terra	75	62½ Terra
,, ...	90	75 ,,
,, ...	96	80 ,,
,, ...	108	90 ,,
Domesday geldable hide, terra ad car. or carucate . .	120	100 Note.—The geldable hide, terra ad car. or carucate, is reached, not by expanding 100 up to 120, but by shrinking in favour of the Angli, &c., 144 or 128 to 120
Terra	144	120 Terra
,, ...	160	133⅓ ,,
,, ...	180	150 ,,
,, ...	192	160 ,,
,, ...	216	180 ,,
,, of wara	240	200 ,, of wara
,, ,, ...	288	240 ,, ,,

All these numbers are to be met with in working out the Tables I. and II. to my Cambridge paper, and an instance of the virgate of 26⅔ is to be found in Picot's fee, 2 H. R. 468, where ¾ of a virgate is said to be 20 acres. The Mercian virgate of 32, with the $\frac{1}{16}$ taken off, would, of course, be the Norman 30, and it is quite possible that the common virgate of 30 in the Hundred Rolls may be cases of this sort.

The Norman king's officers, charged (as no doubt they were) with the task of forming (from the primary returns sent to them from all parts of the country) an assessment which would be of one uniform standard, as to money and acreage, were subject to the difficulty which would manifestly arise from the three modes of dividing the pound-paying unit, and also of the existing methods of dividing the libra or pound of silver—i.e. into 288 pence and 240 pence and 256— and also from the difference in the mode of counting between the Angli and Normans already mentioned—the Anglicus numerus fitting into the divisions of the libra as made by the Angli, and the Norman and Danish way of counting fitting into the divisions of the pound into 240 pence. They seem in very many cases, and presumably in all, to have been instructed or to have followed previous practice thus. In some cases they appear to have stated the number of hides, terræ ad car., or carucatæ, or areas, at one-sixth less of the actual number, six hides, or car., being reckoned as five. This course they pursued more especially where the areas could be reduced without leaving fractions, or where one or more persons occupied substantial blocks 'extra hidam,' as at Chyllelesla, in Hertfordshire. In other cases they treated as 'extra hidam' the sixth part in each individual area in cultivation : thus, 144 acres would be, for the purposes of taxation, reduced to 120, the virgate of 36 to 30, the hide of wara of 288 to 240, and so on; the surplus acreage was actually placed 'extra hidam.' They thus would arrive at a uniform assessment. There are distinct proofs of the king's officers thus acting in D. Bk. itself; but if it was possible to compare D. Bk. with the original returns in England, or with succeeding manuscripts such as 'H. R.,' 'L. E.,' or 'R. C.,' I have no fear but that many more would be found. Of instances of the first method of reduction there is that of Clifton in Yorkshire, D. Bk. Tom. i. fol. 313ᵃ, being No. 344 in the

table *ante*. The exact entry is : ' In Clifton supra dicto
manerio adjacet soca horum Fuleforde una carucata et tres
bovatæ Aseri quatuor carucatæ Chetelsthorp quatuor carucatæ
Languelt una carucata et dimidium Chelchefeld duo carucatæ
et duo bovatæ Morebi una carucata. Distone quatuor
carucatæ. Hi tria fuerunt maneria tamen sunt in soca de
Cliftun simul ad geldum quindecim carucatæ una bovata
minus et—octo carucatæ possunt ere.' If, for the purposes of
simplicity, we add a bovate to each side of the equation, we
shall then have 18 carucatæ in area reduced by the king's
officers to 15 carucatæ ad geldum. The details of this manor,
which was in a three-course, are these :—

		Actual Area	
viii car. 'Anglico numero '	. .	1,152	8 × 144
Idle shift	.	576	
		1,728	

1,728 acres are 18 carucates of 96 (12 bovates of 8ª).

Explanation of Taxation.

viii car. ad geldum	. .	960	8 × 120
Idle shift 'extra hidam '	. .	480	
		1,440 acres	

1,440 acres are 18 carucates of 80 (12 bovates of 6⅔).

A bovate of 6⅔ ' Anglico numero ' equals 8ª, and 80 ' Anglico
numero ' is 96, and 18 of 80 equals 15 of 96. In most counties
(except Dorset, Middlesex, Sussex, Surrey, York, and Wilt-
shire) the entry would have run—viii. ' hid,' or ' car.,' ad
geldum terra est ad xviii. car.

So, too, at Chillelesla, in Hertfordshire, the actual total
area was 6 areas of 120 acres of wara, and so amounting
altogether to 1,440. The king's officers have reduced this in
D. Bk. to 5 hides of geldable land, i.e. 600 acres ; the process
being as follows :—Half goes off as untaxed fallow in a two-
course manor, the areas being areas of wara, and the fallow
' jacens in communi,' then the remaining 720 is reduced one-
sixth by reducing the number of geldable hides from six to

five ; this sixth remained in the lord's demesne entirely
untaxed.

The following are of the other method. Wilburton D. Bk.
192ᵃ is a case of this description. The actual area all told
was 864 acres, as appears from the details of it contained in
the MS. L.E., made up thus :—

Lord's arable (including lord's pratum of 39ᵃ) . .	423
Cottagers, 1ᵃ each	9
Libere tenentes	108
4 Sochmanni	24
Operarii	300
	864

and the entry in D. Bk. is this : ' Ibi v hidæ. Terra est vii
car. In dominio iii hid. et i virg. et ibi iii car. Ibi iiii
sochi et ix vill. cum iiii car. Ibi viiii cotarii et vii servi.'
The entry in ' Inquisitio Eliensis,' p. 506, is as follows :—
Wilbertona pro v hid. se defendit vi car. ibi est terra iiii car.
et iii hid. et una virga in dominio iiii car. hominum ix villani
quisque x acr. et iiii alii vill. de una virgata.'

On reference to the primary return, contained in the ' In-
quisitio Eliensis ' (Ellis D. Bk. tom. iv., page 506), it appears
that ' vi car. ibi est terra ' divided into ' quatuor car. in
dominio ' and ' quatuor car. hominum.' These six car. of the
' Inquisitio Eliensis ' of 120, ' juxta estimationem Anglorum '
6 (144), exactly equal 864 acres ; or, as D. Bk. put it, 3 lord's
car. of 144 (120, ' Anglico numero ') plus 4 average car. of
108 acres to tenants exactly make the 864ᵃ. The eight
ploughs of the lord and men of the ' Inquisitio Eliensis ' have
an average terra of 108 acres each over the manor. If a sixth
part is taken off a terra of 108, it becomes 90, and that is just
to what the king's officers have in D. Bk. reduced the terra
of the car. of 108 belonging to the libere tenentes (the ix vill.
quisque de x acris). But the case does not end there ; the
holdings of the homines were holdings of ' wara,' i.e. the
fallow was not taxed ; the manor was in a three-course shift,

and the actual acreage of the tenants' car. (4 car. of 108) was 432; so the king's officers take off a third for fallow, which they make 'extra hidam ;' deducting this 144 from 864 there remains 720 acres, off which they take a sixth, as at Cliftun and elsewhere, and the total is reduced to 600, or 5 hides of 120, at which it stands ad geldum. The lord's iii hidæ et i virg. is really 3(120 + 24) not 360 + 24. There are other cases like this in D. Bk.

In the case of Broctune in Hunts D. Bk., tom. i. fol. 204ᵃ, there are 9 hides ad geldum. The lord pays on the lord's land (4 hides), as we learn from D. Bk. that he had 4 car. This leaves tenants' land on which the geld of five more hides was to be paid. The H. R. (taking the geldable virgate of D. Bk.) says it is thirty acres, which, of course, it must be if we accept the theory that the Domesday geldable hide, or carucate, is 120 acres and six would go to an areal carucate of 180 in a three-course shift. But as regards the actual areas, the R. C. (Rolls Series, p. 333), says this : ' Sex autem virgatæ et dimidia terræ faciunt hydam ; et triginta et duæ acræ faciunt virgatam.' The two statements are both right, if the geldable Domesday hide was 120 acres ; and it is explained thus : Six areal virgates of 48 give 288—i.e. a hide of wara ' juxta estimationem Anglorum.' The sum total of 5 hides of ' wara,' i.e. fallow not taxed, ' Anglico numero' would be 1,440. The king's officers take off one half for fallow, which reduces it to 720 ; they then take off the sixth, which reduces it further to 600, which are 5 hides of 120 ad geldum. The singular way in which ' quadraginta et octo ' is turned in R. C. into ' triginta et duæ et dimidium ' shows that the manor had gone into a three-course between the time of D. Bk. and the R. C. Before leaving this case, I may say that I have a suspicion that H. R. and D. Bk. also, sometimes for convenience sake, transposed numbers. Thus : 30 of 32 = 32 of 30.

The next case that I will allude to is that of Ellingtune in Huntingdonshire, tom. i. fol. 204[b]. Leaving out one hide which the King had taken for forest and another that the milites had, there were eight hides 'ad geldum'; of these the lord had two, leaving six to the men: the actual area of the homines was 864. The R. C. says that 6 areal virgates of 24 went to a hide; the H. R. (not following D. Bk., but being equally right) says 5, reducing 6 to 5, instead of reducing 24 to 20. The facts were that off every virgate the king's officers take and place 'extra hidam' a sixth, i.e. 4 ac., making the virgate 20 acres, of which there would be of course six in the geldable hide of 120. It will be noticed in this case, and at Broctune, that the number of hides is not reduced, but the amount of acreage put 'extra hidam' reduces the whole to the same extent. Moreover, the 5 of 24 of the H. R. = the 6 of 20 of D. Bk.

The last case that I shall take is one from vol. ii. of H. R. 545, being that of Schelford Magna, where twenty-five men by name are each said to hold 15 or 7½ acres, but when the holdings of these same men are compared with their holdings as stated in a contemporaneous MS. (L. E.), they are found to be in *number* ⅕th larger, viz. 18 and 9 acres or Anglo-Saxon areas.

(Hundred Rolls, A.D. 1279.) Magna Shelford. De Servis.		(MS. L.E. A.D. 1277.) Magna Shelford. De dimidiis virgatis.
Nicholas Dilkes	15	18
William Almer	15	18
Robert King	15	18
Richard Bode	15	18
John Wray	15	18
Hereward Samar	15	18
Suneman ad Pot	15	18
William Blize	15	18
Henry Godfrey	15	18
Richard Hochelle	15	18
William King	15	18
William Samar	15	18
Thom. fil. Walt.	15	18
John Samar	15	18

Aliis Servis.		De tenentibus Novem acras.	
Albertus Molendinus.	7½		9
Abel Faukes	7½		9
John Lessy	7½		9
William Lessy	7½		9
Adam Rolf	7½		9
Richard Hug	7½		9
John Tarburn	7½		9
Folkes	7½		9
Richard de Bery	7½		9
John Chanter	7½		9
William Rolf	7½		9

The MS. L. E. states the measuring pole to be 16½ feet, i.e. statutory foot of 304 mm.; this equals, as we have seen, *ante*, 15 feet of 335, and 18 feet of 279, therefore the *acres* would be equal by whichever rod they were measured, but the number of acres correspond with the number of feet in pole that was used centuries before, viz. the duodecimal rod of 279 mm., 6 falls going to the acre (see *ante*).

The explanation is simple enough—both statements are true—because the H. R. statement is only that of the Domesday geldable land, and so 15 acres answers thus to the 18 of the MS., which contain 15ᵃ of taxed land plus 3ᵃ *extra hidam* being the surplus acres caused by the Anglicus numerus, or division of their pound-paying unit and duodecimal division of their rod, the *number* of acres grouped in the pole land or virgate following the number of feet in the virga. But nevertheless one of two antiquaries (calculating from the size of the virgate of the manor) would make the Domesday geldable hide to be 120ᵃ, and the other would make it 144. Each would calculate according to which of the two MSS. they respectively got hold of. This shows the danger of error that may arise from taking the area of a virgate of the tax-paying part of the D.Bk. hide to be the actual area in acres or *vice versâ*, and may also explain, perhaps, the use of the term *plena terra*, as meaning a terra containing not only the geldable land, but the land *extra hidam*.

I cannot refrain from inserting here a passage which alludes to the method of counting to be found in East Anglia even at the present day. It is to be found in the 3rd edition of the Life of Frank Buckland, at p. 309, and is as follows : ' The crab fishers of Cromer have a peculiar arithmetic. Thus, two crabs are counted as one : the two crabs being called a cast, six score crabs are called a hundred. At Cromer, therefore, a hundred crabs means 240.' But our forefathers were more advanced than that when they grouped into one pound-paying unit or hide of wara, ' Anglico numero,' 288 acres.

But it must be clearly understood that this reduction of the sixth part is not in the nature of an assessment, but that a sixth part in actual acres was put ' extra hidam,' and that the Mercian sixteenth part or the Anglo-Saxon sixth part might, as at Chyllelesla, be held independently by a third person. Moreover, in some cases in MSS., the definite names of ' sexacra ' and ' sexlond ' was given to this sixth part ; thus in the Domesday of St. Paul (Hale, p. 46) there will be found an entry shewing that ' Ralf fil leflede ' held ' I acram sexacram extra hidam,' and in the same page ' II sexacras extra hidam.' So, too, at page 49, there is a list of persons who hold eight acres of ' sexacras,' and another in regard to ' sexlond.' It is worthy of remark, however, that at page lxvii. of the same book Archdeacon Hale has yielded to the mistaken suggestion of a friend, and has confessed to an error of transcription where there has been no error at all.

The following table shews the practical working of the Anglicus numerus and the change from a two to a three-course shift.

F means fallow; S means surplusage;

Anglico Numero											
Wara, 3 course				Wara, 2 course				Simple			
Total	Extra hidam		Infr. hid. D. Bk.	Total	Extra hidam		Infr. hid. D. Bk.	Total	Extr. hid.	Infr. hid. D. Bk.	
	F	S			F	S					
24	8	2⅘	13½	24	12	2	10	12	2	10	Bovate
24	*8	0	*16								
36	12	4	20	36	18	3	15	18	3	15	,,
48	16	5½	26⅔	48	24	4	20	24	4	20	Virgate
48	*16	0	*32								
72	24	8	40	72	36	6	30	36	6	30	,,
96	32	10⅔	53⅓	96	48	8	40	48	8	40	,,
96	*32	0	*64								
144	48	16	80	144	72	12	60	72	12	60	Terra
192	64	21½	106⅔	192	96	16	80	96	16	80	,,
192	*64	0	*128								
216	72	24	120	216	108	18	90	108	18	90	,,
288	96	32	160	288	144	24	120	144	24	120	,,

VII. 'VILLANUS,' 'SERVUS.'

The words 'villanus' and 'servus' in D. Bk. do not necessarily imply a reference to *one person* only. They very often mean an estate of one or more villani, or servi, worked by one plough, such villani and servi being in the MSS. called 'socii' and 'participes.' There are to be found in D. Bk. repeated instances of halves of villani (Burewelle, D. Bk. 192[b], and Grantesete, D. Bk. 196[a], for instance) where the words must have meant estates, and not persons (as these are not cases of half commendation, but are distinct halves of villani; thus at Burwell the entry is 'ibi XLII vill. et dim.'); and this fact is made clear by cases where the statement of the number of hides is exactly the same in Domesday and in the Hundred Rolls, and we are thus enabled to make a comparison between the details of such manors (being manors in Cambs, Hunts, and Bucks) as contained in the Hundred Rolls and

Wara means fallow untaxed.

Norman Numbers							
Simple	Wara, 2 course			Wara, 3 course			
Infr. hid. D.Bk.	Infr. hid. D.Bk.	Extr. hid. F.	Total	Infr. hid. D Bk.	Extr. hid. F.	Total	
10	10	10	20	13½	6⅔	20	*Note.*—If the surplusage arising from the Anglicus numerus is taken off by reducing the number of areal hides or
15	15	15	30	20	10	30	car. (for instance, where 6 hides or car.
20	20	20	40	26⅔	13⅓	40	are reduced to 5) there would of course be no further reduction in the indi-
30	30	30	60	40	20	60	vidual areas: consequently there would be five virgates of 24 in every
40	40	40	80	53⅓	26⅔	80	120 instead of 6 of 20+4ᵃ ex. hi. : so, too, in the same event the numbers
60	60	60	120	80	40	120	marked * would be developed : see remarks, *ante*, pp. 84, 85, on virgate
80	80	80	160	106⅔	53⅓	160	of 32 : and so on in regard to all the virgates and areas expressed in
90	90	90	180	120	60	180	*twelves*, or fractions of twelves. In the case of the pound-paying unit of
120	120	120	240	160	80	240	256 instead of ⅛ being taken off there would be 1/32 taken off, i.e. 8 acres off every 128 and 2 off 32.

in D. Bk. respectively: for instance, Lechamstead, 18 hides, D. Bk. 144ᵇ, and 2 H. R. p. 338; Acle, 3 hides, D. Bk. 147ᵇ, and 2 H. R. p. 339; Mortune, 5 hides, D. Bk. 153ᵃ, H. R. p. 341 ; Stratford, 8 hides, D. Bk. 149ᵇ, 2 H. R. 342, &c. See a very curious case, Saltreyea, or Saltrede, 7½ hides + ½ v., D. Bk. 204ᵇ, and 2 H. R. p. 659. The population of the country at the time of D. Bk. has, in consequence, been greatly under-estimated, to the extent, I should say, of at least one-third ; and anything put forward as historical fact in regard to population, founded only on the number of ' villani' stated in D. Bk., is, I am perfectly sure, of very little value, however distinguished the historian may be who uses Domesday Book for the purpose of ascertaining the number of the population at that time.

It has been assumed—rightly or wrongly I cannot say— that the form of inquiry sent to the Commissioners who made inquest of the manors of the Abbey of Ely was the

same that was sent into other counties. The inquiry which called forth the 'Inquisitio Eliensis' was to include a return of 'quot hidæ quot carucæ in dominio quot hominum quot villani quot cotarii quot servi quot liberi homines quot sochmanni.' From the fact of halves of 'villani' having been mentioned in Domesday we are driven to the conclusion that the inquiry was directed to their estates and not to the number of such persons, and I am inclined to think that the return really asked for was, how many ploughs of the men ? and of these, how many have the villani ? how many the servi ? how many the cottagers ? how many the freemen ? and how many the sochmanni? because I have found so many cases in the Hundred Rolls and other old MSS. where the number of virgates exactly tallies with the number of villani, servi, bordarii, sochmanni and libere tenentes stated in Domesday. Of course I shall be met with the objection, How could 'servi' have ploughs or hold land ? The Domesday 'servus,' however, was not a slave as we understand the word, and he did have ploughs and he did have land, with this proviso, that he held them at the will of his lord.

The homines of the lords were divided in the laws of Ina into 'geneats' and 'geburs,' and the difference between the two and their respective obligations to their lord can be found in Thorpe, 'Ancient Laws, &c., of England,' first edition, page 185 ; it is sufficient to say that the 'villanus' of Domesday was the 'geneat,' and the 'servus' of Domesday the 'gebur,' and that in the Latin translation of these laws of Ina, made in the 12th century, the word 'geneat' is construed 'villanus,' and the word 'gebur' is construed 'servus.'

Moreover, in Oxfordshire, 698, Hundred Rolls, vol. ii., at the end of each class of tenant, *i.e.* of 'servi,' 'libere tenentes' and 'cotarii,' it is stated thus, 'Et tenent ut servi,' 'et tenent ut libere tenentes,' 'Et tenent ut cotarii,' and so too in other manors, clearly showing that they held estates.

Generally it may be said that Domesday and the Hundred Rolls are returns exactly similar, with this exception, that Domesday merely gives the number of virgates and groups them under the names 'villanus,' 'servus,' 'cotarius,' 'bordarius,' while the H. R. also gives the number of virgates (often just the same in number as in Domesday), but goes on to disclose what has escaped our historians, viz. that in each virgate there often were crowded many 'socii' or 'participes,' holding portions of such virgates. For this reason it is expressly enacted in the 'Brehon Laws,' vol. iii. p. 142, that 'two persons possessing one holding upon the land of one man are regarded as one man,' and in the 'Leges Walliæ,' p. 790, 'Census terræ que dicitur rantyr (particula) est a villano sive unus sit sive multi sint in ea,' and there is ground, therefore, to suppose that the recording of the number of *estates* was aimed at in Domesday rather than the actual number of men and women on such estates, and that the number of 'villani' as recorded in Domesday falls very far short of the actual number occupying the land.

APPENDIX.

I HAVE added this Appendix, containing certain variations in the several feet set down in Column B. The figures in the several columns are amounts expressed in millimètres; but I have disregarded fractions of millimètres, adding one, however, where the fraction exceeds half a millimètre. Column A contains the names of the several places given in Kelly's 'Cambist.' Column B contains the length of the foot at each of such places as returned by the British Consuls abroad in answer to Lord Castlereagh's circular of March 10, 1818. Column C contains the length of a foot the size of which is twelve-tenths of the foot named in Column B. Column D contains the amount of a *sesquipedalis* cubit of foot C. Column E contains the length of a foot of the size of three-fifths of such cubit. It follows therefore that a rod of 12 of the feet in Column B equals a rod of 10 of the feet in Column C, and a rod of 13 of the feet in Column B practically equals 12 of the feet in Column E, and a rod of 9 of the feet in Column C equals a rod of 10 of the feet E or 6 of the cubits in Column D. Take Groningen for an example, with the foot of ·291–2 m.; 650 (50 × 13 of Column B=50 × 12 of Column E) of these feet equal 189 mètres, which make the exact length of the Babylonian stadion : but 600 of ·315 m. of E, or 540 of C, or 360 of the cubits of D also make that stadion. See *ante*, p. 259.

By the addition of a fifth to the cubit of D it becomes a *bipedalis* cubit of foot E, and the stadion becomes 226·8 m., which squared becomes 10 Scotch acres of 72 × 720 of ·3148 m.

It will also thus appear how the foot of 330 of E (England) is the foundation of the Westmoreland acre (*ante*, p. 270). It is not necessary to multiply further examples.

If *sixteen*-tenths (instead of *twelve*-tenths) of the foot of Column B is taken to form a foot, it will, in some cases, make another known foot : for instance, *sixteen*-tenths of the common foot of ·289–90 m. gives the 464 foot of Pavia, and *sixteen*-tenths of the Statute foot of England (·3048 m.) gives ·4876 m. of Geneva, and 60 × 600 of these give the Cheshire acre of 96 × 960 (*ante*, p. 274). The feet in Column B up to a certain size are evidently common feet with or without a sole or shoe, and then become mathematical feet of a larger size. (*Note.*—The Geneva 'aune,' 1·1429 m., is the English ell of 5 Welsh feet of nine inches.)

A	B	C	D	E	—
Welsh (Govt. Report) .	228	274	411	247	C, Riga
England, 10 inches . .	254	305	456	274	4 B = Calpee 'Guz'
Valencia	232	278	418	251	Palmo, C, Heidelberg
Sicily	242	290	435	261	Do. C, Gottingen
Carrara	244	292	439	263	Do. C, Groningen
Genoa, 3 B. Roman 'Gradus'	247	296	445	267	Do. C, Old Roman
Sardinia	248	298	447	268	Do. C, Anspach
Greek, 3 B. = bema . .	257	308	462	271	C, Attic foot
Nice, 3 B. Babylon step .	261	314	470	282	Pan, C, Scotch
Naples	264	316	475	285	Palmo, C, Vienna
Revel, 3 B. Bagdad yard .	268	321	482	289	C, Olympic nearly
Riga	274	328	493	296	E, old Roman ; C, Lisbon
Cologne	275	330	495	297	C, Westmoreland
Heidelberg . . .	278	334	501	301	C, Moscow-China
Osnaburg . . .	279	335	502	301	{ C, Drusian foot. B, Anglo-Saxon ?
Hildersheim . . .	281	337	505	303	C, Chinese Tradesmen
Maestricht . . .	281	337	505	303	
Erfurt	282	339	508	305	E, Statute foot of ·3048 m.
Leipsic	282	339	508	305	
Stettin	283	339	509	305	
Spain	283	339	509	305	
Magdeburg . . .	284	340	510	306	C, Verona
Dresden	283	340	510	306	
Amsterdam . . .	283	340	510	306	
Breslau	284	341	512	307	
Antwerp	285	343	516	308	E, Attic foot
Brunswick . . .	285	342	513	308	C, Lyons
Haarlem	286	343	514	309	
Dantzic	287	344	516	310	E, Berlin
Hamburg	286	344	516	309	
Frankfort . . .	286	344	516	309	
Lorraine	287	344	516	310	
Würtemberg . . .	286	343	515	309	
Gotha	287	345	517	310	
Liège	287	345	517	310	
Lübeck	288	346	518	311	C, Vicenza
Ulm	289	347	521	312	C, Venice

A	B	C	D	E	—
Bremen	289	347	520	312	
Mannheim . . .	289	347	521	313	
Munich	289	347	520	312	
Strasburg . . .	289	347	521	312	
Ratisbon . . .	289	348	522	313	
Rostock	289	347	520	312	
Lindau	289	347	521	312	
Göttingen . . .	291	349	523	314	C, Russia
Hanover	291	349	523	314	
Luneberg . . .	291	349	523	314	
Stralsund . . .	291	349	523	314	
Weimar	291	349	523	314	
Zell	291	349	523	314	
Mecklenberg . . .	291	349	523	314	
Groningen, 3 B. Egyptian step . . .	292	350	525	315	E, Scotch foot of ·3148 m. C, Egyptian, Russian, and Welsh. D, Babylonian ell. E, Babylonian foot
Irish measure, 'Big acre'	·2942m.	353	529	•·3177m.	
Calemburg . . .	293	351	527	316	
Berne	293	352	528	317	•E, Cunningham acre foot
Augsburg . . .	296	355	533	319	
Cleves	295	355	532	319	
Oldenburg . . .	296	355	533	319	
Strasburg . . .	295	354	531	319	C, Padua
Sweden	297	356	534	320	B, old Roman; C, Royal, Welsh, Irish; E, Olympic feet. D, Royal cubit
Embden	296	355	533	320	
Milan	296	355	533	320	
Anspach	298	357	536	322	C, Bordeaux
Rome	298	357	536	322	
Pisa	298	358	537	322	
Basle	298	358	537	322	
Middelburg . . .	300	360	540	324	C, Dordrecht
Neuchâtel . . .	300	360	540	324	
Zürich	300	360	540	324	
Prague	300	360	540	324	
Nuremberg . . .	304	364	546	328	E, Lisbon
England	305	366	549	329	E, foot of Westmoreland
Königsberg . . .	308	369	554	332	B, the Attic
Berlin	309	371	557	334	E, Chinese and Drusian; C, Chinese 'Covid'
Lindau	315	378	567	340	C, Sienna
Scotch, Babylonian .	315	378	567	340	
Rhine	314	376	564	339	
Innspruck . . .	318	381	571	343	C, Bologna
Vienna	316	379	569	341	B, Cunningham acre
Turin	323	388	581	349	
France	325	390	585	351	E, Babylonian foot
Lisbon	328	394	591	355	E, Royal foot
Moscow	334	401	602	361	B, Drusian, Chinese
Verona	340	408	612	367	
Lyons	342	411	616	370	

A	B	C	D	E	—
Vicenza	346	415	623	374	
Venice	347	417	625	375	2 B, Hamburg ell
Russia	349	419	628	377	B, Babylonian, Welsh foot of ·350 m.
Padua	354	424	636	382	B, Royal
Bordeaux . . .	357	428	642	385	Do. 80 x 800 Normandy acre
Dordrecht . . .	360	432	648	389	
Sienna	377	453	679	407	B, 12-tenths of ·3148 m.
Bologna	380	457	685	411	B, 12-tenths of ·317
Milan	396	476	714	429	
Ferrara	401	481	722	433	B, 12-tenths of 334 Drusian
Bergamo . . .	436	523	785	471	
Pavia	464	557	836	502	B, 16-tenths of 290
Geneva	488	585	878	527	B, 16-tenths of 304

From the above it will be seen how before the common feet begin and after they end the 'mathematical' measures take their place. Some of the mathematical feet are the old so-called Roman, the Royal, the Olympic, the Drusian, the Statute, the Attic, the Babylonish, or some variation of them. This more fully comes out in the cloth ells : very often these consist of two of some common local foot, but (as will appear in the following list) when this is not so they are generally built up out of one of the above-named feet, which coincide with the local measures. It is curious that the Japan Inc is 6 of the feet of ·317 m., which is the foot of the Cunningham acre in Ireland (72 × 720) and is in use in Arabia, Bologna, Innspruck, and North of Italy, being, I should imagine, a slight variation of the Babylonish foot of ·315 m.

Sometimes the same place has two different ells, each built up of different feet.

The following measures and cloth ells may (not without doubt, however) in some cases have been transmitted by merchants, but more often, I believe, by conquest or colonisation.

Column A gives the names of the places in Kelly's 'Cambist;' B is the amount of the ell, or what answers to the ell ; C, the number of feet in the ell ; and D, the amount of the foot or palm in millimètres.

A	B	C	D	—
'Royal Foot' of ·355 m.; sesqui-pedalis cubit of ·533 m. (7 palms of ·076 m.); bipedalis cubit, ·710 m.				
Barcelona	535	1½	357	
Saltzburg	801	1½	534	
Constantinople . . .	708	2	354	
Surat	716	2	358	
Morocco	533	1½	355	
Nantes	1·416m.	4	354	
Revel	535	1½	357	
Russia	711	2	355	'Arsheen'
Calpee	711	2	355	'Guz'
Ahmednuggar 'Hath' . .	355	1	355	'Hath'
Olympic Foot, ·320 m.; cubits: bipedalis, ·640 m.; sesqui-pedalis, ·480 m.				
Bagdad 'yard". . .	804	2½	321	3 Revel feet
Mocha	482	1½	320	'Covit'
Nancy	639	2	320	
Padua	642	2	321	Voua
Siam	1·92 m.	6	320	Voua
Sicily	1·93 m.	6	320	
Verona	640	2	320	10 B, Irish perch
Trieste	640	2	320	
Zante	644	2	322	
Candia	638	2	319	
Calpee	1·6 m.	5	320	'Guz'
Doab	479	1½	320	'Hath'
Chinese Engineers . .	321	1	321	
'Old Roman' Foot, ·296 m.; bipedalis cubit, ·592 m.; sesqui-pedalis, ·444 m.				
Augsburg	592	2	296	
Bologna	595	2	297	
Bordeaux	1·19 m.	4	297	
Erfurt	594	2	297	
France	1·18 m.	4	297	
Marseilles	do.	do.	do.	
Milan	594	2	297	
Nice	1·18 m.	4	296	
Prague	592	2	296	
Rochelle	1·18 m.	4	296	
Sweden	593	2	296	
Turin	591	2	295	

A	B	C	D	—
Babylonish Egyptian Foot, ·350 m.; *Ell*, ·525 m.				
Irish 'big acre' rod . . .	3·53 m.	10	353	Decempedal rod
Brabant	700	2	350	
Hague	694	2	347	
Lille	703	2	351	
Ostend	699	2	350	
Naples, old Egyptian Orguia .	2·10 m.	6	350	
Babylonish Foot, ·315 m., ⅗ths of *Ell of* ·525 m.				
Cunningham acre . . .	5·72 m.	18	·3177m.	
Scotland	944	3	·3148 m.	Modern ell
Surat	470	1½	314	
Bassora	941	3	314	
Arabia, old ell	635	2	317	D, Cunningham acre
Bergen	627	2	·3138 m.	D, Rhine foot
Tunis	629	2	314	
Bologna	634	2	317	Benares yard
Japan Inc	1·90 m.	6	317	3 B, Cunningham rod
Bolsano, 3 × ·264 m. = step .	790	2½	315	B, Step
Venice	630	2	315	Old Scotch ell
Copenhagen	627	2	314	
Innspruck	787	2½	314	
Mantua	635	2	317	
Calpee 'Guz'	940	3	313	
Mocha	634	2	317	'Guz'
Parma	637	2	318	
Patros	634	2	317	
Persia	945	3	315	
Drusian Foot, Chinese, ·334 m.				
Calpee	997	3	332	'Guz'
Saltzburg	1·005 m.	3	335	
Aix	668	2	334	Anjar 'Guz'
Berlin	666	2	333	
Cyprus	671	2	335	
Embden	670	2	335	
Ferrara	669	2	335	
Namur	663	2	331	
Oudenarde	667	2	334	Ahmedabad 'Guz'
Ravenna	672	2	336	
Trent	676	2	338	
Trieste	675	2	337	
Tunis	673	2	336	
Bengal	1·332m.	4	333	'Covah'
Montpelier	1·987m.	6	331	'Canne'

A	B	C	D	——
English Foot, ·3048 *m.* (4 *palms of* ·076 *m.*) *Welsh* ' *Foot* ' *of* 3 *palms,* ·2286 *m.; cubit,* 6 *palms,* ·456 *m.*				
Welsh foot 9 inches . . .	·2286 m.	9	·0254 m.	(Government Re-
Turkish pic	684	3	228	port, 1820, p. 17,
Trent	611	2	305	*voce* ' Wales '
Syria	685	3	228	
Abyssinia	685	3	228	
Amsterdam	687	1½	456	Bombay
Antwerp	684	3	228	
Augsburg	609	2	304	Bengal
Batavia	685	3	228	Bombay
England	1·14 m.	5	228	
Geneva	1·14 m.	5	228	
Bombay	457	6	076	
Cairo	680	3	227	
Lucca	604	2	302	
Madras	457	6	076	
Maestricht	684	9	076	
Oran	685	3	228	
Padua	681	3	227	
Patras	685	3	228	
Scios	685	3	228	
Constantinople	687	3	229	
Smyrna	685	3	228	
Stuttgart	611	2	305	
Toulouse	1·82 m.	6	303	
Guinea	3·65 m.	12	305	
Leyden	683	3	228	
Libau	610	2	305	
Lisbon	678	3	226	Covado
Old Welsh	2·74 m.	12	228	(Government Re- port, p. 22, *voce* ' Llathen Gyvelin '
	i.e.	6	456	Rod of Cubits
Baroda	684	3	228	' Guz '
Malwa	2·28 m.	10	228	' Wussa '
Attic Foot, 308 *m.*				
Poland	617	2	308	
Tournay	619	2	309	
Modena	617	2	308	
Malacca	460	1½	307	
Nowlgoond	462	1½	308	

The acre abroad is sometimes called a ' Morgen ' or ' journalis ; ' it probably meant the quantity that must be ploughed in order to be quit of one day's work, not what the team was *able* to plough : the size of the acre seems to have nothing to do with the capacity of the

ox or the length of the furrow either.   If the Roman jugerum measured the capacity of two oxen turning in every 120 feet, eight oxen turning only once in 660 statute feet would take a much larger area than the statute acre. The acre is evidently the result of an imaginary and mathematical division of some bigger unit, probably a quarantene or stadion, just as the Babylonish stadion was divided.

It is hardly necessary to remark that the word 'furlong' means, not a *furrow long*, but rather a line of forty rods long.   This line squared makes a 'stadialis ager' or *acre* : i.e. a quarantene and 144 of these make a still larger ager, as shown *ante* in this paper, amounting to ten or twelve hides.   From the use of the words *acre* or *ager* in these senses the names of places such as Castle Acre, West Acre (West field), &c., have arisen.   And perhaps the word 'ager' in the Cornwall Domesday has this sense too.

Moreover on the Continent as in England we sometimes find in the *same* place two '*Morgens*' or acres each of different sizes representing two separate divisions of the same 'ager' or quarantene.   Kelly's 'Cambist' (p. 35, *Berlin*), after stating that the engineer's foot is the Rhineland foot of ·314 m. and the *ruthe* or rod is *twelve* of these feet, continues thus : '*A Great Hufe land measure is divided into* 30 *Great Morgens or* 66⅔ *Little Morgens or Acres; a Hacken or Small Hufe contains* 2 *Great Morgens; a land Hufe is* 1 *Great Morgen. The Great Morgen is composed of* 400 *square Ruthes or Perches, and the Little Morgen of* 180.'   Now if an ager of 7,200 feet square of ·314 m. to the foot is divided into ten strips and each strip into ten *agri*, we get an ager or quarantene of 720 of such feet square ; and if we divide this last by 10, we get *ten* Scotch acres of 72 × 720 of ·314 m. to the foot.

Halving this Scotch ager or acre of 72 × 720, we get the Little Morgen of 36 × 720 containing the 180 square ruthes of 12 × ·314 m. If we take the same ager of 720 × 720 and divide it by 9 instead of 10, being the proportion that in Mecklenburg (see *ante*, p. 3 of this Appendix) foot C ·349 m. bears to foot E—i.e. as 9 to 10—we get the Great Morgen of 80 × 720 of the foot ·314 m. E, containing 400 square ruthes of 12 of these feet.   So that in each *strip* there would be 3 Great Hufes or 90 Great Morgens or 100 Scotch acres or 200 Little Morgens ; and 10 times these quantities would comprise the larger ager of 7200 feet square.   A larger ager of 8640 × 8640 divided by 12 and again by 12 would produce the same ager or quarantene with a total in all of 43½ Great Hufes, 1440 Scotch acres, or 2880 Little Morgens or 1296 Great Morgens.   The connection of the foot C with the foot E is shown at the beginning of this Appendix.   It therefore

follows that an ager or quarantene of 720 feet square of the foot of
·314 m. equals an ager of 648 feet square of the foot of ·349 m. and this
divided by 9 gives the acre or ager of 72 × 648 (6 × 54 twelve-feet
ruthes) of the foot of ·349 m.: *nine* of such acres equalling *ten* Scotch or
twenty Little Morgens as before. These are the *mathematical divisions*
by which the Morgens would be arrived at. Moreover, what we in Eng-
land call the 'acre' is on the Continent sometimes divided into two or
more 'Morgens.' See Hanover, last table, p. 385, and Berlin, p. 382.

The actual shape of the acre would of course be adapted (as it is
in the statute of Edward) to the configuration of the ground, *that*, in
fact, determining the length of the furrow, and not the capacity of an
eight-ox plough. Reverting to a Scotch quarantene of 720 feet square
of the Babylonish foot of ·315 m. (instead of ·3148 m. thus replacing ⅓ of
a millimètre lost in its travels) we have a quarantene of 226·8 m. each
side—that is, 108 Egyptian Orguiæ of 2·10 m. (6 feet of ·350 m.) or 120
Babylonish quani of 1·89 (6 × ·315 m.) or 72 quani of 3·15 m. : it would
therefore appear that the Big Morgen was on the lines of the big foot
of ·350 m. and the Scotch acre and Little Morgen on the smaller
Babylonish foot of ·315 m.

The Cunningham acre in Ireland of 6250 square statute yards is
75 × 750 stat. feet of ·305, which is the tenth part of an ager or quarantene
of 720 of ·3177 m. to the foot, instead of ·315 m., being a foot in use in
Arabia, Bologna, Mantua, Patros, and Japan, as well as in Ireland, and
being apparently the Babylonian foot of ·315 m. with an addition of over
2 mm. The acre, therefore, would appear to be deduced in the same
way as the Scotch, but with a slightly larger foot. Now as 9 of C feet
equal 10 feet of E (9 × ·350 m. = 3·15 m.), so also 10 of the E feet of
·3177 m. = 9 of the C feet of ·353 m., and the actual existence of this
foot of ·353 m. in Ireland is thus well proved, and it is further proved
thus: in the Carew MSS. (see *ante*, pp. 282, 286) there is mention made
of a big acre measured by a rope of 29 statute feet. This acre, there-
fore, is 4 × 29 or 116 × 1160 statute feet of ·3048. Now 1,160 statute
feet is 353 mètres, and that is seen to be 1,000 feet of ·353 m. or 111⅓
of ·3177 m. or 1,200 of the foot ·2942 m. (see Appendix tables, *ante*, voc.
'Irish Measures'). The acre was therefore in length 100 ten-feet poles
or 50 twenty-feet ropes of the ·353 m. foot C, or 120 ten-feet poles or
60 twenty-feet poles or 40 thirty-feet ropes of the foot B of ·2942 m.,
and 5 acres made up a stadion of 600 feet of the foot B ·2942 m.
There is also an acre in Wales, already described *ante*, based on the big
foot of ·350 m., being 80 × 800 of those feet. I think that there is no
doubt that when we read of a pole or a rope expressed in any other way

than in decimal, duodecimal, septdecimal or sexdecimal numbers, viz. in 5, 6, 7, or 8, or some multiple thereof, without fractions of feet or cubits, we may be fairly sure that the rod is expressed in feet or cubits other than the original feet ; I have therefore added the following table, which shows each point where the multiples of certain feet coincide. The other feet named in the tables *ante* can be dealt with on the same principle, thus solving many difficulties often disposed of by the ready use of the word 'about.'

The base of many of the acres in the United Kingdom (as well as the rods) will be found in some one of the following columns. If the *base* is multiplied into ten times its amount, it will give the acre itself in mètres normally, subject, however, to the following remark : if the *number* of feet *supposed* to form the base of an acre when divided by 4 will not produce a rod being a multiple either of 5, 6, 7, or 8 without fractions, then a different base (though of exactly the same actual length) of a different number of feet of a different size is the probable and more ancient base. Thus the statute acre in its base is 66 feet of ·3048 m. = 20·1168 m. Now 66÷4 = 16½, which does not conform to the above conditions : if we take, however, the Osnaburg foot of ·2794 m. and reckon 72 to the base, this will give the 20·1168 m. and does conform to the conditions, as it produces the rod of 18 feet. So also will a base of 60 × ·33528 m. For this reason I do not think that the Roman gradus or the Greek and Egyptian bema were 2½ of their respective mathematical feet, but rather three of the feet B next to such mathematical feet, which would then not run the measures into fractions of feet. Thus the Roman gradus was 2½ of ·2967 m. or ·741 m. = (see Genoa in column B) 3 × ·247 m. = ·741 m ; and if a quarantene or stadion of 600 feet consisted of 240 steps or bemata, then it would also consist of 600 of foot C, or 720 of foot B.

This entirely coincides with Dynval's measurements in Wales (*ante*, Gwentian Code), giving as he does three of his 'feet' of ·228 m. = ·684 m. to his pace = 2½ of the Riga foot B. Following this out and taking 240 of his paces, we get the quarantene of 720 of his feet = 540 statute feet or 10 Anglesea acres, being the quarter of 10 Irish acres of 144 × 1440 Dynval's feet or 108 × 1080 statute feet (see *ante*, page 285). All such measurements would be strictly in the decimal and duodecimal system combined ; but working in the decimal and sexdecimal systems combined, and so giving 320 paces (2 × 16 × 10) to the quarantene instead of 240, we get a stadion of 960 feet, which contains 10 Cheshire acres, if of the stat. foot, or 40 erws if of Dynval's foot of ·228 m. = 10 Cornish and Lancashire acres of 5760 stat. yards.

But the bigger units were sometimes stepped out and divided on strictly *decimal, duodecimal* and *sexdecimal lines*. Thus the Devonshire quarantene is *two hundred* (2 × 10 × 10) paces of three statute feet (instead of 240, 2 × 12 × 10) = 600 statute feet, and giving ten Devonshire acres each of four thousand statute yards. The quarantene of 2½ mænols containing *ten trevs* (*ante,* page 280) is two hundred and fifty-six (16 × 16) paces of three feet of Dynval's ·228 m. = 768 feet ; and the quarantene or half tircumhail in Ireland (see *ante,* p. 265) is *two hundred and eighty-eight* (2 × 12 × 12) paces of three feet of ·296 m. = 864 feet. Lastly, there is the quarantene of *double steps* : the only one that I know of is built up of Dynval's feet, and is twelve hundred of them, being *two hundred of double steps* 6(2 × 10 × 10) = 1,200 of Dynval's feet ·228 m. This when reduced to stat. feet of ·3048 m. becomes the Lancashire quarantene of 900 statute feet or *six hundred cubits*, or 10 acres of 9,000 stat. yards with a pole (when thus reduced to stat. feet) of 7½ yards, but really 30 Dynval's feet.

In regard to these pace-feet (and referring back to the first table in this Appendix), if the feet in Column B are treated as pace-feet it will be found that the *sesquipedalis* cubit of Column D is also the *bipedalis* cubit of the pace-foot of Column E, i.e. *three of such pace-feet* = 2½ of E, just in the same way as 3B = 2½C. This foot of the *bipedalis cubit* is nine-tenths of B, three-quarters of C, and five-sixths of E. For example, take England, the second case in the tables: the *sesquipedalis* cubit ·456 m. D = *two of Dynval's pace-feet* of ·288 m. which in the *first* case in the list is found to be the *pace-foot* of *England* E ·274 m., being the Riga foot, 2½ of which = 3 of ·228 m. Again, Irish measures, page 3 : the *sesquipedalis* cubit D ·5294 m. = the *bipedalis* cubit of ·2647 m., which is the pace-foot of ·3177 m., i.e. 2½ of ·3177 m. = 3 of ·2647 m. So, too, the pace-foot of *England* is *ten inches,* ·254 m., 720 of which make up the Devonshire quarantene, for 3 of ·254 m. = 2½ of ·305 m. It follows, therefore, that in every case the feet in Column C bear to the feet in Column E the proportion of 10 to 9, being the exact proportion that the Egyptian foot of ·350 m. bears to the Babylonish foot of ·315 m., the same proportion, of course, also existing between their respective pace-feet of ·292 m. and ·2625 m. The tables are useful for tracing connections between the feet and ells otherwise uususpected. Thus the Milan foot is ·396 m.; the *sesquipedalis* cubit of which is ·594 m.; this when treated as a *bipedalis* cubit gives the foot of ·297 m. (practically the 'old Roman foot'), which is the pace-foot of ·355 m. (see Lisbon, Column C); and, as a matter of fact, the ell at Milan is ·594 m.

Note (italic, at head of description column): *As there are more than one acre in Ireland I call the Irish acre the 'plantation.'*

A — Old Roman Foot of ·296	B — Royal Foot of ·355	C — Olympic Foot of ·320	D — Statute Foot of ·3048	E — Drusian Foot of ·334	F — Babylonian Foot of ·315	G — Egyptian Foot of ·350	II — Attic Foot of ·308	I — Welsh 'Foot' ·228	No.	
·01225	·0221	·020	·0190	·028	·019	·021	·019	·014		
·02466	·0295	·0266	·0254	·027	·0262	·029	·025	·019		
·0296	·0355	·0320	·03048	·0334	·0315	·0350	·0308	·0228		
·074	·0887	·080	·0762	·0835	·0789	·0875	·077	·057		
·296	·355	·320	·3048	·334	·315	·350	·308	·228	1	Palms
·444	·5325	·480	·4561	·501	·4725	·525	·462	·342	1½	Sesquipedales cubits
·592	·710	·640	·6096	·668	·630	·700	·616	·456	2	Bipedales cubits; F, old Scotch ell; B, Russian 'arsheen'
·888	1·065	·960	·9144	1·002	·945	1·050	·924	·684	3	F, modern Scotch ell; D, English yard; I, Dynval's step
1·184	1·420	1·280	1·2192	1·336	1·260	1·400	1·232	·912	4	I, English and Genevan ell
1·480	1·775	1·600	1·5240	1·670	1·575	1·750	1·540	1·140	5	I, Dynval's double step, 3 cubits of D; B, Russian sashine
1·776	2·130	1·920	1·8288	2·004	1·890	2·100	1·848	1·368	6	
2·072	2·485	2·240	2·1336	2·338	2·205	2·450	2·156	1·596	7	D, Russian sashine or fathom
2·368	2·840	2·560	2·4384	2·672	2·520	2·800	2·464	1·824	8	D, Gad Llathen Gyvelin; I, Dynval's 'leap,'
2·664	3·195	2·880	2·7432	3·006	2·835	3·150	2·772	2·052	9	B, Irish fertach
2·960	3·550	3·200	3·048	3·340	3·150	3·500	3·080	2·280	10	
3·256	3·905	3·520	3·3528	3·674	3·465	3·850	3·388	2·508	11	A, Irish fertach; I, Gad, Welsh pared
3·552	4·260	3·840	3·6576	4·008	3·780	4·200	3·696	2·736	12	D, rod of Westmoreland
3·848	4·615	4·160	3·9624	4·342	4·095	4·550	4·004	2·964	13	
4·144	4·970	4·480	4·2672	4·676	4·410	4·900	4·312	3·192	14	E, statute pole
4·440	5·325	4·800	4·5720	5·010	4·725	5·250	4·620	3·420	15	D, Battle Abbey pole? I, Dynval's rod
4·736	5·680	5·120	4·8768	5·344	5·040	5·600	4·928	3·648	16	
5·032	6·035	5·440	5·1816	5·678	5·355	5·950	5·236	3·876	17	D, double gad, Cornish and Lancashire rod; B, 'plantation' rod
5·328	6·390	5·760	5·4864	6·012	5·670	6·300	5·544	4·104	18	
5·624	6·745	6·080	5·7912	6·346	5·985	6·650	5·852	4·332	19	C, rod of Irish plantation acre
5·920	7·100	6·400	6·0960	6·680	6·300	7·000	6·160	4·560	20	D, rod of ditto
6·216	7·455	6·720	6·4008	7·014	6·615	7·350	6·468	4·788	21	
6·512	7·810	7·040	6·7056	7·348	6·930	7·700	6·776	5·016	22	
6·808	8·165	7·360	7·0104	7·682	7·245	8·050	7·084	5·244	23	
7·104	8·520	7·680	7·3152	8·016	7·560	8·400	7·392	5·472	24	D, Cheshire rod
7·400	8·875	8·000	7·6200	8·350	7·875	8·750	7·700	5·700	25	
7·696	9·230	8·320	7·9248	8·684	8·190	9·100	8·008	5·928	26	

A Old Roman Foot of '296	B Royal Foot of '355	C Olympic Foot of '320	D Statute Foot of '3048	E Drusian Foot of '334	F Baby- lonian Foot of '315	G Egyptian Foot of '350	H Attic Foot of '308	I Welsh 'Foot' '228	No.	
7·992	9·585	8·640	8·2296	9·018	8·505	9·450	8·316	6·156	27	D, rope of big Irish acre
8·288	9·940	8·960	8·5344	9·352	8·820	9·800	8·624	6·384	28	
8·584	10·295	9·280	8·8392	9·686	9·135	10·150	8·932	6·612	29	D, rope of biggest Irish acre
8·880	10·650	9·600	9·1440	10·020	9·450	10·500	9·240	6·840	30	
9·176	11·005	9·920	9·4488	10·354	9·765	10·850	9·548	7·068	31	
9·472	11·360	10·240	9·7536	10·688	10·080	11·200	9·856	7·296	32	
9·768	11·715	10·560	10·0584	11·022	10·395	11·550	10·164	7·524	33	
10·064	12·070	10·880	10·3632	11·356	10·710	11·900	10·472	7·752	34	
10·360	12·425	11·200	10·6680	11·690	11·025	12·250	10·780	7·980	35	
10·656	12·780	11·520	10·9728	12·024	11·340	12·600	11·088	8·208	36	B, Irish plantation rope
10·952	13·135	11·840	11·2776	12·358	11·655	12·950	11·396	8·436	37	
11·248	13·490	12·160	11·5824	12·692	11·970	13·300	11·704	8·664	38	C, Irish plantation rope
11·544	13·845	12·480	11·8872	13·026	12·285	13·650	12·012	8·892	39	
11·840	14·200	12·800	12·1920	13·360	12·600	14·000	12·320	9·120	40	D, Irish plantation rope
12·136	14·555	13·120	12·4968	13·694	12·915	14·350	12·628	9·348	41	
12·432	14·910	13·440	12·8016	14·028	13·230	14·700	12·936	9·576	42	
12·728	15·265	13·760	13·1064	14·362	13·545	15·050	13·244	9·804	43	
13·024	15·620	14·080	13·4112	14·696	13·860	15·400	13·552	10·032	44	
13·320	15·975	14·400	13·7160	15·030	14·175	15·750	13·860	10·260	45	
13·616	16·330	14·720	14·0208	15·364	14·490	16·100	14·168	10·488	46	
13·912	16·685	15·040	14·3256	15·698	14·805	16·450	14·476	10·716	47	
14·208	17·040	15·360	14·6304	16·032	15·120	16·800	14·784	10·944	48	I, Dynval's erw
14·504	17·395	15·680	14·9352	16·366	15·435	17·150	15·092	11·172	49	
14·800	17·750	16·000	15·2400	16·700	15·750	17·500	15·400	11·400	50	
15·096	18·105	16·320	15·5448	17·034	16·065	17·850	15·708	11·628	51	
15·392	18·460	16·640	15·8496	17·368	16·380	18·200	16·016	11·856	52	
15·688	18·815	16·960	16·1544	17·702	16·695	18·550	16·324	12·084	53	
15·984	19·170	17·280	16·4592	18·036	17·010	18·900	16·632	12·312	54	D, ¼ big Irish and Welsh acre, and base of Anglesea acre
16·280	19·525	17·600	16·7640	18·370	17·325	19·250	16·940	12·540	55	
16·576	19·880	17·920	17·0688	18·704	17·640	19·600	17·248	12·768	56	
16·872	20·235	18·240	17·3736	19·038	17·955	19·950	17·556	12·996	57	D, ½ biggest Irish acre
17·168	20·590	18·560	17·6784	19·372	18·270	20·300	17·864	13·224	58	
17·464	20·945	18·880	17·9832	19·706	18·585	20·650	18·172	13·452	59	
17·760	21·300	19·200	18·2880	20·040	18·900	21·000	18·480	13·680	60	D, Devonshire acre; E, statute; B is the Hampshire, and F a Worcester-
18·056	21·655	19·520	18·5928	20·374	19·215	21·350	18·788	13·908	61	shire acre
18·352	22·010	19·840	18·8976	20·708	19·530	21·700	19·096	14·136	62	
18·648	22·365	20·160	19·2024	21·042	19·845	22·050	19·404	14·364		

No.	C1	C2	C3	C4	C5	C6	C7	C8	C9	Description
64	18·944	22·720	20·480	19·5072	21·376	20·160	22·400	19·712	14·592	F, 2 Leicestershire (32 × 640)
65	19·240	23·075	20·800	19·8120	21·710	20·475	22·750	20·020	14·820	D, statute acre, English chain
66	19·536	23·430	21·120	20·1168	22·044	20·790	23·100	20·328	15·048	
67	19·832	23·785	21·440	20·4216	22·378	21·105	23·450	20·636	15·276	
68	20·128	24·140	21·760	20·7264	22·712	21·420	23·800	20·944	15·504	
69	20·424	24·495	22·080	21·0312	23·046	21·735	24·150	21·252	15·732	D, Hampshire acre, 1/16 Roman stadion
70	20·720	24·850	22·400	21·3360	23·380	22·050	24·500	21·560	15·960	
71	21·016	25·205	22·720	21·6408	23·714	22·365	24·850	21·868	16·188	D, Cornish and Lancashire; B, plantation Irish; E, Scotch; A, 1/3 Irish 'forach' or rope; 1/8 Russian dessetina, i.e. 72 × 864
72	21·312	25·560	23·040	21·9456	24·048	22·680	25·200	22·176	16·416	
73	21·608	25·915	23·360	22·2504	24·382	22·995	25·550	22·484	16·644	D, Cunningham acre
74	21·904	26·270	23·680	22·5552	24·716	23·310	25·900	22·792	16·872	
75	22·200	26·625	24·000	22·8600	25·050	23·625	26·250	23·100	17·100	
76	22·496	26·980	24·320	23·1648	25·384	23·940	26·600	23·408	17·328	
77	22·792	27·335	24·640	23·4696	25·718	24·255	26·950	23·716	17·556	D, Westmoreland
78	23·088	27·690	24·960	23·7744	26·052	24·570	27·300	24·024	17·784	
79	23·384	28·045	25·280	24·0792	26·386	24·885	27·650	24·332	18·012	G, Welsh, 3 Govt. Rep. p. 26 (bat); C, Irish plantation
80	23·680	28·400	25·600	24·3840	26·720	25·200	28·000	24·640	18·240	
81	23·976	28·755	25·920	24·6888	27·054	25·515	28·350	24·948	18·468	
82	24·272	29·110	26·240	24·9936	27·388	25·830	28·700	25·256	18·696	
83	24·568	29·465	26·560	25·2984	27·722	26·145	29·050	25·564	18·924	D, Irish plantation
84	24·864	29·820	26·880	25·6032	28·056	26·460	29·400	25·872	19·152	
85	25·160	30·175	27·200	25·9080	28·390	26·775	29·750	26·180	19·380	
86	25·456	30·530	27·520	26·2128	28·724	27·090	30·100	26·488	19·608	
87	25·752	30·885	27·840	26·5176	29·058	27·405	30·450	26·796	19·836	
88	26·048	31·240	28·160	26·8224	29·392	27·720	30·800	27·104	20·064	
89	26·344	31·595	28·480	27·1272	29·726	28·035	31·150	27·412	20·292	
90	26·640	31·950	28·800	27·4320	30·060	28·350	31·500	27·720	20·520	D, Lancashire big acre
91	26·936	32·305	29·120	27·7368	30·394	28·665	31·850	28·028	20·748	
92	27·232	32·660	29·440	28·0416	30·728	28·980	32·200	28·336	20·976	
93	27·528	33·015	29·760	28·3464	31·062	29·295	32·550	28·644	21·204	
94	27·824	33·370	30·080	28·6512	31·396	29·610	32·900	28·952	21·432	
95	28·120	33·725	30·400	28·9560	31·730	29·925	33·250	29·260	21·660	D, Cheshire acre; I, Cornish
96	28·416	34·080	30·720	29·2608	32·064	30·240	33·600	29·568	21·888	
97	28·712	34·435	31·040	29·5656	32·398	30·555	33·950	29·876	22·116	
98	29·008	34·790	31·360	29·8704	32·732	30·870	34·300	30·184	22·344	
99	29·304	35·145	31·680	30·1752	33·066	31·185	34·650	30·492	22·572	D + 16 D, biggest Irish acre; I + 20 I, big Lancashire acre
100	29·600	35·500	32·000	30·4800	33·400	31·500	35·000	30·800	22·800	

It may possibly be alleged that the Welsh 'foot' of ·228 is an impossible foot, as being too small ; but it is only necessary to say that the Geneva 'foot' of ·488 is also an impossible foot, for if the ·228 is not even the foot of a small dwarf, the Geneva foot exceeds that of a big giant. The fact is, both are merely mathematical expressions, the smaller really being a 'span' and the other a 'cubit.'

It is also worth mentioning that there is another version of Dynval's Welsh rod in the Venedotian Code which shows that his 16-'span' rod is in fact the 12-statute-foot rod by which the Cornish acre of 5760 yards was measured, of which anyone can satisfy himself by referring to the immediately preceding table.

The following table expressed in decimals of a mètre, without calling in the table itself any of these divisions either 'spans,' 'fingers,' 'inches,' 'feet,' 'cubits,' 'ells,' &c., treat them as what in fact they only are—that is, mathematical divisions of bigger units, just as the acre itself is : Column A contains the names of the several furlongs, quarantenes, stadia or stadiales agri ; Column B contains *ten* units of B; Column C contains *twelve* units of B; Column D contains *eighteen* units of Column B; Column E contains *nine* units of B, and is therefore one half of D ; and Column F contains twelve tenths of Column E. As a general rule (extending from Babylon and Egypt, which I place first in the lists, to the remotest parts), any given furlong, quarantene, or stadion consists of six hundred of the units of Column D, whatever we please to call them. It will therefore consist of 900 of Column C, 1200 of Column E, and 1000 of Column F.

If the mathematical division of D is multiplied by *ten* we get the *decimal* rod of ten of such divisions ; divide this *rod* into *twelve* divisions, and we get a *duodecimal* rod of smaller divisions ; divide it by fourteen and we get a rod of fourteen divisions ; divide it by *sixteen* and we have a *sexdecimal* rod of still smaller divisions. All of these divisions people have agreed to call 'feet.'

This *decimal* rod may thus be divided by any number we please, between ten and fifteen, to suit any particular 'foot' we may select.

This was done on the adoption of the statute 'foot' of ·3048, whether adopted before or at the time of the passing of the statute. The *decimal* rod was then divided by *eleven*, and it thereupon fitted in to the statute foot of ·3048. So far all is clear ; but the base line of an acre is ordinarily divided into *four* rods or roods of *sesquipedales* cubits : the measuring rod must therefore be increased by half as much

again, i.e. by *five* of the *decimal* divisions, by *six* of the *duodecimal* divisions, by seven in the case of the septdecimal divisions and by *eight* of the *sexdecimal* divisions, and the increased rod would become *fifteen, eighteen, twenty-one*, and *twenty-four* of their respective original divisions. Column E multiplied by 30 will often give it : no other original divisions of the original decimal rod will bear such increase *without running into fractions ;* this, to my mind, is conclusive that the division of the original *decimal* rod into *eleven* divisions was made to fit in with another 'foot.' Now if we take the Cornish acre (present also in Derbyshire, Lancashire, Wales, &c., all Celtic country) carved out of the quarantene of 219·6, and divide this quarantene by *sixty*, we get the *decimal* rod of 3·66; divide this into *twelve* divisions, and we have the statute foot of ·3048 ; divide it by *sixteen*, and we get Dynval's '*foot*' of ·228, and the rod may be increased as above by a half without running into fractions. Now we are expressly told in the Venedotian Code, Book II. c. xiv., that Dynval did use this latter rod of 16 × ·228 '*before the Crown of London and supremacy of this island was seized by the Saxon.*' It was therefore in use in England before they came, not only in the countries above named, but also in Devonshire, with the furlong of 182·88, consisting of *eighty decimal* rods of ·228, *fifty sexdecimal* rods of ·228, or *sixty decimal* rods of ·3048. These are the considerations which led me to suppose that the sexdecimal divisions were present in England before the advent of the Saxons—a supposition in accordance not only with mathematical fact but also with historical fact as recorded in the Venedotian Code and the Government Report of 1820.

I have stated also in the table the Cloth Ell of the *country* of the several cases therein, whether in England or on the Continent or elsewhere. It will be seen how in every case they fit in with the measurements of some one of their respective furlongs, and I am driven to the conclusion that these cloth ells are not in the main later productions following the advent of strange merchants, but in their original were purposely and conveniently adapted to renders in cloth, &c. It is a most singular fact that the *Japan* '*Inc*' is 1·902, being practically *half* the *duodecimal* rod of the Cunningham acre in Ireland, the former being 6 × ·317, and the latter 12 × ·3177. This cannot be an accidental coincidence, or to be accounted for by the action of merchants, but rather by the spread of land measures from some centre common to both countries in remote times. If any person will take the trouble to work out other cases with the help of

Kelly's 'Cambist,' in which are collected the amount of foot and cloth ells, I think he will arrive at the conclusion at which I have arrived—namely, the probability of a close connection between land and *cloth* (not *silk*) ells. In some places we find more than one land foot in the same place, indicating, I imagine, not the presence of merchants, but rather that of colonists or conquerors. I could have given many more cases than those in the tables, and I think that the tracing of the travels of these several feet from remote times would be quite as instructive as that of the beech and birch lately discussed by the experts.

A	B	C	D	E	F	
Name of Furlong or Stadion or Quarantene.						
Babylon. See Naples, *infra*	·175	·210	·315	·1575	·189	Stadion 189 m. +600 = 3(2 × 10 × 10) ·315 10 D was the quanu or rod
Egypt. See Scotland and Naples, *infra*	·196	·2334	·350	·175	·210	Stadion 210 m. +600 = 3(2 × 10 × 10) ·350 The rod or fathom or orguia was 2·10, of which there would be 100 in the furlong, and then taking ten to the 'acre' there would be ten 'acres' of 60 × 600 of ·350, or 40 × 400 of ·525. 6 D is the orguia, and 60 was the amma
Devonshire	·169	·2032	·3048	·1524	·18288	Quarantene 182·88 m. +800 = 2(2 × 20 × 10) ·228 Welsh +600 = 3(2 × 10 × 10) ·3048 statute foot 30 E is the rod
Cornish, Welsh, Lancashire	·15	·183	·366	·183	·2196	Quarantene 219·6 m. +600 = 3(2 × 10 × 10) ·366 +720 = 3(2 × 12 × 10) ·3048 statute +960 = 3(2 × 16 × 10) ·228 Dynval Welsh 30 E is the rod
Westmoreland	·220	·264	·396	·198	·2376	Quarantene 237·6 m. +720 = 3(2 × 12 × 10) ·330 Westmoreland +780 = 3(2 × 13 × 10) ·3048 statute +600 = 3(2 × 10 × 10) ·396 30 E is the rod
Welsh and Irish	·305	·367	·550	·275	·329	Quarantene 329 m. +1080 = 3(2 × 18 × 10) ·305 statute +1440 = 3(3 × 16 × 10) ·228 Dynval Welsh +600 = 3(2 × 10 × 10) ·550 30 E is the rod

A	B	C	D	E	F	
Name of Furlong or Stadion or Quarantene.						
England	·186	·2234	·335	·167	·20016	Quarantene 201·16 m., English furlong +720 = 3(2 × 12 × 10) ·2794 +660 = 3(2 × 11 × 10) ·3048 +600 = 3(2 × 10 × 10) ·335 30 E is the rod
Lancashire	·254	·304	·457	·2286	·2743	Quarantene 274·3 m. +900 = 3(2 × 10 × 15) ·304 statute foot +600 = 3(2 × 10 × 10) ·456 statute cubit +1200 = 3(2 × 10 × 20) ·2286 Welsh foot Ell 2 × ·228 or 1⅕ ·3048 30 E is the rod
Berlin, ·6668; ell = 2 × ·3334 'Cambist,' p. 35	·186	·2232	·3348	·1674	·20089	Quarantene 200·89 m. +650 = 3(2 × 10 × 16⅔) ·309 Berlin +600 = 3(2 × 10 × 10) ·334 Drusian +640 = 2(2 × 10 × 16) ·3139 Rhine +720 = 3(2 × 10 × 12) ·278 Osnaburg See *ante*, beginning of this Appendix, and Kelly's 'Cambist' (Berlin). The rod of 16⅔ of course is abnormal, just as the 16⅔ statute rod is, and caused by the adoption of ·309 foot. This furlong is practically the same as the English. 30 E is the rod = 16 × ·3139 = 16⅔ ·309 = 15 × ·334 = 18 × ·278; 4 × 40 rods to the acre
Naples. See Calemberg. 2·1073 = 6 × ·351 = 8 × ·2634 is the 'Canna' and also the Egyptian fathom	·176	·211	·316	·158	·18966	Quarantene 189·66 m. +90 = canna of 2·107 +600 = 3(2 × 10 × 10) ·316 +720 = 3(2 × 10 × 12) ·2634 the 'palmo' Moggia 9 × 90 Canna = 72 × 720 palmos
Cheshire, English ell, 1·143	·272	·326	·488	·244	·2928	Quarantene 292·8 m., Cheshire furlong +960 = 3(2 × 16 × 10) ·305 statute +600 = 3(2 × 10 × 10) ·488 Geneva +1280 = 4(2 × 16 × 10) ·228 Welsh +256(16 × 16)1·14 Geneva ell, 1·143} = 5 × ·2286 English ell, 1·143} = 2½ English cubits

Scotland, ell '9445 = 3 × '3148 5 × '1889	'207	'2485	'3777	'1888	'22666	Furlong 226·66 m. +720=3(2 × 12 × 10)·3148 30 E is the rod
Ireland, Cunningham acre .	'211	'2547	'38126 '19063	'22874	Furlong 228·74 m. +720=3(2 × 12 × 10)·3177 +864=3(2 × 12 × 12)·264 30 E is the rod
Ireland, big acre . .	'3272 '39263 '58894 '2942	'353568	Furlong 353·568 m. +1160=(4 × 10 × 29)·3048 abnormal. See the diagram, [*ante*, p. 285 +1000=2(2 × 25 × 10)·35368 +1200=2(2 × 30 × 10)·2942 30 E the rope, 20 E the rod
Normandy, aune 1·188 = 4 × '297	'264	'3178	'4752	'2376	'28512	Furlong 285·12 m. +880=4(2 × 11 × 10)·324 pied de Roi ÷800=4(2 × 10 × 10)·357 +960=4(2 × 12 × 10)·297 30 E is the rod
Russia Cloth 'arsheen' '711 = 2 × '355 'Cambist,' p. 301. 10 E is the fathom of 3 arsheens	'195	'233	'426	'213	'2556	255·6 m. Same as ⅔ Irish 'tircumhail,' *ante*, p. 265 +720=3(2 × 12 × 10) = '355 This appears to be divided into twelve divisions (just as the 'tircumhail' in Ireland) of 60×720, two of which made the 'dessetina' of Russia, containing 120×720 or 86400 square feet: the 72 × 864 of '296 of the 'tircum-hail'=60×720 of '355. There were no less than five different feet in Russia: the Egyptian of '350, the Royal '355, the Drusian at Moscow '334, the Rhineland '3138, and our statute foot; and yet it will be observed that the cloth 'arsheen' follows the measure of the land. The Russian 'werst' is exactly 5 Roman stadia
Sweden, ell '5934 = 2 × '2967 'Cambist,' p. 331	'206	'247	'3711	'185	'2226	Furlong 222·6 m. +720=3(2 × 12 × 10)= '3091 The Swedish Tunneland or acre is 56000 Swedish square feet of '2968, and the rod is sixteen of these latter feet: these 56000=72 × 720 of '3091. Here again the measure of cloth follows the land.

A	B	C	D	E	F	
Name of Furlong or Stadion or Quarantene.						
Erfurt (Kelly's 'Cambist,' p. 126) Ell ·594 = 2 × ·297	·373	·3688	·5532	·2766	·33186	Quarantene 331·8672 m. = 1120 × ·2963 = 1176 × ·2822 ÷600 = ·553 ÷10 = 112 × 1120 = 8 × 14 × 1120 = 4 'roods' or morgens of 2 × 14 × 1120 of ·2963 The square quarantene contains 42 morgens of 168 square ruthes of 14 feet of ·282 (Leipsic), or 40 morgens of 160 square ruthes of 7 ells of 2 × ·2963. 15 E is the rod of 14 of ·2963
Amsterdam ('Cambist,' p. 11), Ell ·687 = 1½ sesquipedalis cubit of the foot of ·3067 60 × 600 of ·306 is the Dorset-shire acre of 134 perches statute	·205	·246	·368	·184	·2208	Quarantene 220·8 m. ÷600 = ·368 ÷720 = ·3067 ÷12 = {60 × 720 × ·3067} {65 × 780 × ·283} ÷6 = {120 × 720 × ·3067} {130 × 780 × ·283} = 1 morgen of 600 square ruthes Ruthe = 12 of ·3067 = 13 of ·283 (Amsterdam), and 10 D is the ruthe. See remarks as to Lothian acre, *ante*, p. 269. 20 E is the ruthe
Dantzic ('Cambist,' p. 83) . Ell ·594 = 2 × ·287	·239	·287	·4304	·2152	·2583	Quarantene 258·3 m. ÷600 = ·4304 ÷900 = ·287 ÷12 = 75 × 900 = 300 ruthes = 1 morgen 10 D = ruthe of 15 × ·287
Hamburg ('Cambist,' p.) Ell ·572 = 2 × ·286	·223	·268	·401	·2005	·2406	Quarantene 240·6 m. ÷600 = ·401 ÷840 = ·2865, Hamburg foot ÷12 = 70 × 840

						Notes
East Friesland ('Cambist,' p. 120) Ell ·670 = 2 × C	·2789	·33472	·50208	·2512	·301248	= 12 half morgens = 6 morgens '403 is the short ell of Erfurt. 10 D is the Hamburg ruthe of 14 Hamburg feet Quarantene 301·248 m. + 600 = ·50208 ÷ 960 = ·3138 Rhineland foot ÷ 16 = 60 × 960 = E. Friesland 'Diempt' of 5 × 80 ruthes of 12 Rhineland feet. Ruthe = 15 × E. = 12 × ·3138. The Lincolnshire customary acre of 5 statute roods is very near this amount. Quarantene + 10 = 90 × 900 of ·3347 or the foot of the ell.
Hanover ('Cambist,' p. 190) Ell ·582 = 2 × ·291	·256	·3104	·4656	·2328	·27936	Quarantene 279·36 m. + 600 = ·4656 ÷ 960 = ·291 Hanoverian foot + 30 = 32 × 960 = 160 rods = Hanoverian morgen 10 D = rod of 16 feet of ·291
Vienna ('Cambist,' p. 350) Ell ·78 = a step of 2½ × ·312	·280	·337	·506	·253	·30336	Quarantene 303·36m. + 600 = ·506 ÷ 960 = 316 + 16 = 60 × 960 × 316 = Vienna 'joch' 15 E = double fathom
Valencia ('Cambist,' p. 343) Ell ·930 = 4 palmos	·206	·248	·372	·186	·22272	Stadion 223·2m. + 600 = ·372 + 720 = 310 + 960 = ·2325 ('Palmo') 960 × 960 = 2 Yugadas 480 × 960 = 1 Yugada = 6 Cahizadas 80 × 960 = 1 Cahizada Welsh palm or 'foot' is ·228; the Valencian palmo is ·232; both are in the sexdecimal system, the only difference being that one is called a 'foot,' the other a 'palmo'

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AN OUTLINE OF THE OBJECTS

OF THE

ROYAL HISTORICAL SOCIETY.

THE 'HISTORICAL SOCIETY' was established in 1868, and was authorised in 1872, by the permission of Her Most Gracious Majesty the Queen, to use the title—

'ROYAL HISTORICAL SOCIETY.'

The principal objects of the Society are :—

I. To promote and foster the study of History on *general scientific* principles.

II. To encourage researches on important *special* historical facts concerning Great Britain and other countries.

III. To assist in the publication of rare and valuable State papers, or any other documents throwing light on the customs, manners, and mode of life of different nations.

IV. To publish translations of standard historical works.

V. To hold monthly meetings, for the reading and discussion of papers on historical subjects.

VI. To publish a selection of the papers read.

VII. To grant from time to time prizes for Historical Essays.

The MONTHLY MEETINGS are held in the Society's Rooms, 11 Chandos Street, Cavendish Square, W., at 8.30 o'clock P.M., on the *third* THURSDAY of each month, from NOVEMBER to JUNE inclusive.

A branch of the Society has been established at Cambridge, under the presidency of Professor J. R. Seeley, V.P.R.Hist.S. Several Meetings are held during the Session.

The SUBSCRIPTION to the Society is Two Guineas per annum, and is payable to the Treasurer on the first day of the Session, viz, 1st of November. There is at present no Entrance Fee.

Nomination Forms and any further information will be furnished on application to the Secretary,

P. EDWARD DOVE,

11 Chandos Street,

Cavendish Square, W.

ROYAL HISTORICAL SOCIETY.

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SELDEN SOCIETY.

FOUNDED 1887,

TO ENCOURAGE THE STUDY AND ADVANCE THE KNOWLEDGE OF THE HISTORY OF ENGLISH LAW.

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OUTLINE OF OBJECTS.

I. The printing of MSS. and of new editions and translations of works having an important bearing on English Legal History ;

II. The collection of materials for Dictionaries of Anglo-French and of Law Terms ;

III. The collection of materials for a history of English Law ;

IV. The holding of meetings for the reading and discussion of papers ;

V. The publication of a selection of the papers read at the meetings and of other original communications.

The first publication of the Society is now in the press. It will be a volume of Thirteenth Century Pleas of the Crown from the Eyre Rolls preserved in the Public Record Office, edited with a translation by Mr. F. W. Maitland, University Reader in English Law, Cambridge. Many of these criminal cases are very interesting and they throw more light than cases of almost any other class on the manners and customs of the people. They are not, however, on that account the less valuable from the point of view of the legal historian. The criminal cases in the Year Books are not many, and yet they have to fill the long interval between Bracton and Staundford. Many points are still obscure, and none more so than the history of the petty jury. By the publication of these records we ought to be able to trace the precise process by which the twelve hundredors and four townsmen of Bracton became the two juries of a later time.

The volume which is now being prepared will begin with the year 1200, the point at which the *Rotuli Curiæ Regis*, published by Sir Francis Palgrave for the Record Commissioners, come to an end, and will contain many cases from the reign of John, as it seems desirable that the working of the ordeals of fire and water should be illustrated as fully as is possible. It will also contain many cases from the first part of Henry III.'s reign, which may serve to show

how a substitute for the ordeals was gradually found in trial by jury.
Though for the most part the cases will be cases of felony, still many
of the grievances redressed by the Great Charter will be illustrated,
and care has been taken to collect whatever throws new light on the
procedure of the ancient local Courts, the system of frank pledge,
the representation of counties and boroughs for judicial purposes, the
condition of the towns, their corporate privileges, and the like.   This
volume will be issued to Subscribers as soon as possible in respect of
the subscription for 1887.   There will be a full subject index and
complete indexes of the names of all persons and places, thereby ren-
dering the volume of great value to local historians and genealogists
as well as to lawyers.   If the number of Subscribers is sufficiently
large, more than one volume will be issued.

It is also proposed, as soon as possible, to print a series of records
of real actions and of cases illustrating villein status and villein
tenure ; but how soon these can be undertaken depends entirely on
the number of Subscribers.

The publications to be issued in respect of the subscription for
1888 are under the consideration of the Executive Committee and
will be announced as soon as possible.

An account of the principal classes of MSS. with which the
Society proposes to deal may be had from the Honorary Secretary
by members of the Society gratis, or by non-members at the price of
one shilling.   Mr. Bernard Quaritch, 15 Piccadilly, W., has been
appointed agent for the sale to non-members of the Society's publica-
tions.

The Annual Subscription to the Society is One Guinea, due on
the 1st of January for the year then commencing.   Members have
no further liability of any kind.   Each Subscriber will receive a copy
of all the publications for the year.   A composition of Twenty
Guineas is accepted in lieu of all Annual Subscriptions, constituting
Life Membership from the date of composition, and in the case of
Libraries, Societies, and Corporate Bodies, membership for 30 years.
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In America, to Professor J. B. THAYER, Cambridge, Mass.,
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23 Old Buildings, Lincoln's Inn.

January 1888.

RULES.

1. This Society shall be called the SELDEN SOCIETY.

2. The object of the Society shall be to encourage the study and advance the knowledge of the History of English Law.

3. The Society shall have a Council consisting of a President, a Vice-President, an Honorary Secretary and Treasurer, and not more than one hundred Members. The Lord Chancellor, the Lord Chief Justice of England, the Master of the Rolls, the President of the Probate Divorce and Admiralty Division, the Chief Justice of the United States, the Attorney-General, the Solicitor-General, the Treasurers of the four Inns of Court, and the President of the Incorporated Law Society of the United Kingdom shall, when willing, be *ex-officio* members of the Council. Twenty members of the Council, of whom three besides the Secretary shall be a quorum, shall form an Executive Committee with full power to conduct the business of the Society.

4. The ten members of the Council and the four members of the Executive Committee senior on the roll shall retire annually, but shall be eligible for re-election.

5. Membership of the Society shall be constituted by payment of the annual subscription or of the life composition.

6. The annual subscription shall be One Guinea, due on the 1st of January for the year then commencing. A composition of Twenty Guineas shall constitute life membership from the date of the composition, and in the case of libraries, societies, and corporate bodies, membership for thirty years.

7. The Anniversary Meeting of the Society shall be held on the 16th of December the birthday of John Selden, or on such other day as the Executive Committee may from time to time appoint.

8. No Member shall receive the Society's publications until his subscription for the year has been paid.

9. An account of the receipts and expenses of the Society, audited by two honorary auditors appointed by the Executive Committee, shall be made up to the 1st of November in each year, and published in the next volume issued by the Society.

10. At the Anniversary Meeting the vacancies in the Council and in the Executive Committee shall be filled up.

11. These Rules shall not be altered except upon motion at the Anniversary Meeting. Notice of any such motion shall be given to the Honorary Secretary not less than one month, and by the Honorary Secretary to the Members not less than fourteen days, before the Meeting.

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200

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